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SPECIAL AGENTS, ETC., DEPARTMENT OF AGRICULTURE.

LETTER

FROM

THE SECRETARY OF AGRICULTURE,

TRANSMITTING,

*In response to the resolution of the House of Representatives of January 22, 1894, a list of the special agents of the Department, together with a statement of their work and the salaries received, for the four years and six months ending December 31, 1893.*

JUNE 22, 1894.—Referred to the Committee on Agriculture and ordered to be printed.

DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
Washington, D. C., June 20, 1894.

SIR: I have the honor, in compliance with a resolution of the House dated January 22, 1894, to transmit herewith a report upon special agents of the U. S. Department of Agriculture, with an account of the services rendered by them during a period of four years and six months, and the expenses thereunto appertaining, amounting in the aggregate to \$326,831.79.

Very respectfully yours,

J. STERLING MORTON,  
*Secretary.*

Hon. CHARLES F. CRISP,  
*Speaker of the House of Representatives.*

[Fifty-third Congress, second session.]

IN THE HOUSE OF REPRESENTATIVES,  
*January 22, 1894.*

Mr. McNagny submitted the following, which was referred to the Committee on Expenditures in the Department of Agriculture:

*Resolved*, That the Secretary of Agriculture be, and is hereby, requested to furnish to the House of Representatives a complete list of the names in the Department of Agriculture of the special agents who have for various purposes and reasons been appointed in and for said Department during the last four years and six months.

And, furthermore, he is requested to state for what object each of said special agents was appointed, what duty devolved upon him by his appointment, the instructions he received, and the reports he has filed as the result of his inquiries and labors, and what his pay and traveling expenses have amounted to in each case, and what the aggregate compensation and expenses of such "special agents" in said Department of the Government of the United States amounted to during the four years and six months ending December 31, 1893.

Attest:

JAMES KERR,  
*Clerk,*

By T. O. TOWLES,  
*Chief Clerk.*

#### REPORT OF THE CHIEF OF THE DIVISION OF ACCOUNTS.

U. S. DEPARTMENT OF AGRICULTURE,  
DIVISION OF ACCOUNTS AND DISBURSING OFFICE,  
*Washington, D. C., February 13, 1894.*

SIR: In reply to the accompanying "resolution introduced in the House of Representatives January 22, 1894," relative to the "special agents" of the Department of Agriculture, I beg to present the following statement, which will, I believe, furnish the information sought. You will observe that comparatively few are designated as special agents, but as they are occupied mainly in the field, upon work of a special nature and generally received traveling expenses, I have included them, giving the exact title under commission, leaving it to you to decide the relevancy of individual cases. The arrangement of names and appropriations is the same upon the tables as in the type-written report. It should be stated that the time of service is not in every case continuous between the dates given, it being in some cases intermittent.

The "artesian-wells" investigation was conducted and completed under the former administration, and as there is no one now in the employ of the Department who was in any way connected therewith, I have been unable to obtain a report as to the purposes and results of said investigation, but furnish herewith a statement of the expenses and a list of the names of those who were employed under the act. The same will apply to the "rainfall" experiments.

The chief of the Division of "Irrigation Investigation" being absent conducting inquiries in the State of California, and there being no clerk or other person on duty in the division, I am unable to furnish a report on this subject; but as there are no special agents employed in the work, a report is not essential.

Very respectfully,

F. L. EVANS,

*Chief of the Division of Accounts.*

Hon. J. STERLING MORTON,

*Secretary.*

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*Salary and expenses of special agents of the Department of Agriculture from July 1, 1889, to December 31, 1893, covering a period of four years and six months.*

**SPECIAL AGENTS, ETC., DEPARTMENT OF AGRICULTURE.**

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Name,	Title,	Salary.	Time of service.	Yrs. Mos.	Ds.	Total salary.	Total expenses.	Grand total.
<i>Collecting agricultural statistics.</i>								
Merritt C. Ring.....	Special statistical agent in Europe.	\$2,500 p. a.	Dec. 3, 1892, to May 1, 1893.....	0	4	27	\$1,028.01	\$243.43
Edmund J. Molat.....	Special statistical agent.....	2,500 p. a.	July 1, 1889, to Oct. 31, 1892.....	3	4	0	8,335.60	656.78
George F. Hinton.....	Special agent.....	75 p. m.	Aug. 8, 1890, to Oct. 7, 1890.....	0	2	1	150.00	23.25
John W. Loyt.....	do.....	125 p. m.	Oct. 27, 1891, to Apr. 27, 1892.....	0	6	1	588.70	588.70
<i>Foreign markets.</i>								
Charles J. Murphy.....	Special agent in Europe.....	2,000 p. a.	Oct. 13, 1890, to June 30, 1891.....	3	2	17	8,100.56	3,412.82
J. I. Murphy.....	Special agent.....	2,500 p. a.	July 1, 1891, to July 31, 1893.....	1	6	15	1,848.91	79.33
C. Frank Dewey.....	Special agent in Europe.....	2,500 p. a.	Jan. 1, 1892, to July 15, 1893.....	0	9	0	1,250.00	195.21
John Mattes, Jr.....	do.....	2,500 p. a.	Oct. 1, 1892, to Mar. 31, 1893.....	0	8	15	2,278.89	427.84
<i>Botanical investigations and experiments.</i>								
Geo. R. Vasey.....	Agent.....	125 p. m.	July 1, 1889, to Oct. 31, 1889.....	0	4	0	500.00	500.00
Edward Palmer.....	Special agent.....	100 p. m.	July 1, 1889, to Aug. 31, 1893.....	4	2	0	5,435.95	241.65
Greenleaf C. Nalley.....	do.....	150 p. m.	July 1, 1889, to Sept. 14, 1892.....	3	2	14	2,697.41	605.00
F. R. Wood.....	do.....	150 p. m.	July 1, 1889, to Sept. 7, 1891.....	2	2	7	375.36	375.36
Jesse H. Holmes.....	do.....	100 p. m.	July 1, 1889, to Sept. 11, 1890.....	1	2	0	300.00	300.00
T. V. Munson.....	Agent.....	100 p. m.	July 1, 1889, to Sept. 30, 1889.....	0	3	0	200.00	200.00
C. R. Orount.....	do.....	100 p. m.	Jan. 1, 1890, to Feb. 28, 1890.....	0	2	6	13	3,335.48
J. M. Coulter.....	Special agent.....	150 p. m.	Dec. 17, 1889, to June 30, 1892.....	2	6	15	1,699.98	211.47
J. H. Simpson.....	Agent.....	100 p. m.	May 1, 1890, to May 15, 1892.....	2	0	0	200.00	3,546.35
B. B. Smith.....	Special agent.....	150 p. m.	July 14, 1890, to Sept. 16, 1890.....	0	2	0	0	1,699.98
William Patten.....	do.....	150 p. m.	Aug. 14, 1890, to Oct. 14, 1890.....	0	2	0	293.98	431.03
Frederick Funston.....	do.....	1,200 p. a.	Aug. 14, 1890, to Dec. 31, 1893.....	3	4	16	4,744.12	960.25
James B. Olcott.....	do.....	1,500 p. a.	Jan. 8, 1891, to June 30, 1891.....	(*)	5	15	150.00	5,704.37
M. A. Carleton.....	Agent.....	185 p. m.	Apr. 15, 1891, to Oct. 1, 1891.....	0	5	15	830.00	150.00
								830.00

\* Worked three months.

*L*etters patent, dated January 10, 1839, authorizing the Secretary of Agriculture to employ special agents, and fixing their compensation.

SPECIAL AGENTS, ETC., DEPARTMENT OF AGRICULTURE.

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<i>Investigations in ornithology and mammalogy.</i>								
Vernon Balch .....	Special field agent.....	{ 1,500 p. a. 1,800 p. a. 100 p. m.	July 1, 1889, to Dec. 31, 1893 .....	4	6	0	6,300.00	6,300.00
A. B. Baker .....	do .....	100 p. m.	July 1, 1889, to July 15, 1889 .....	0	0	15	48.39	48.39
C. S. Brinley .....	do .....	100 p. m.	July 17, 1890, to Sept. 16, 1890 .....	0	2	0	201.72	201.72
William Lloyd .....	Field agent.....	{ 1,400 p. a. 1,000 p. a. 75 p. m.	July 1, 1890, to Apr. 1, 1892 .....	1	9	0	1,890.80	1,890.80
Basil Hicks Dutcher .....	Temporary field agent.....	{ 1,200 p. a. 1,000 p. a. 900 p. a. 100 p. m.	June 23, 1890, to Sept. 30, 1892 .....	2	3	7	566.12	566.12
E. W. Nelson .....	Special field agent.....	{ 1,800 p. a. 75 p. m.	Nov. 1, 1890, to Dec. 31, 1893 .....	3	2	0	4,50.00	4,500.00
E. A. Goldman .....	Temporary field agent.....	{ 1,200 p. a. 100 p. m.	Mar. 1, 1892, to Dec. 31, 1893 .....	1	10	0	1,687.48	1,687.48
Russell J. Thompson .....	do .....	{ 1,000 p. a. 100 p. m.	Apr. 1, 1892, to Nov. 30, 1892 .....	0	8	0	715.80	715.80
J. Alden Loring .....	do .....	100 p. m.	Apr. 1, 1892, to Dec. 31, 1893 .....	1	9	0	2,100.00	2,100.00
Edward A. Preble .....	do .....	{ 1,000 p. a. 1,200 p. a. 100 p. m.	Apr. 1, 1892, to Sept. 30, 1892 .....	0	6	0	560.00	560.00
George A. Colman .....	do .....	{ 1,200 p. a. 100 p. m.	Apr. 15, 1892, to Sept. 16, 1892 .....	0	5	0	503.33	503.33
Prof. W. Koch .....	Special field agent.....	{ 1,200 p. a. 100 p. m.	July 25, 1893, to July 16, 1893 .....	0	0	7	22.58	22.58
J. Ellis McLellan .....	Temporary field agent.....	100 p. m.	July 25, 1893, to Dec. 31, 1893 .....	0	5	7	522.58	522.58
<i>Pomological investigations.</i>								
T. T. Lyon .....	Special agent.....	900 p. a.	Aug. 1, 1890, to Dec. 31, 1893 .....	3	5	0	3,074.20	341.26
A. J. Phillips .....	do .....	1,200 p. a.	Apr. 1, 1891, to Dec. 31, 1892 .....	1	9	0	2,001.10	370.55
William H. King .....	do .....	100 p. m.	Sept. 25, 1891, to Oct. 25, 1891 .....	0	1	0	100.64	205.72
John S. Harris .....	Field agent.....	900 p. a.	Aug. 1, 1892, to Nov. 1, 1892 .....	0	3	0	225.00	41.63
<i>Vegetable pathological investigations and experiments.</i>								
N. B. Pierce .....	Special agent .....	{ 1,500 p. a. 1,800 p. a. 60 p. m.	July 1, 1889, to Dec. 31, 1893 .....	4	6	0	6,866.21	592.75
Erwin F. Smith .....	do .....	75 p. m.	July 1, 1889, to Dec. 31, 1893 .....	4	6	0	8,100.00	820.92
A. W. Pearson .....	do .....	50 p. m.	July 1, 1889, to Aug. 31, 1889 .....	0	2	0	100.00	100.00
Frank S. Earle .....	do .....	75 p. m.	July 1, 1889, to Sept. 15, 1889 .....	0	2	0	125.00	125.00
A. M. Howell .....	do .....	25 p. m.	May 1, 1890, to June 30, 1890 .....	0	2	0	150.00	150.00
J. B. Ellis .....	do .....	100 p. m.	July 1, 1889, to Dec. 31, 1893 .....	4	6	0	1,350.00	1,350.00
H. L. Lyman .....	do .....	50 p. m.	May 1, 1890, to Aug. 31, 1890 .....	0	4	0	400.00	400.00
F. W. Anderson .....	do .....	100 p. m.	July 1, 1889, to Oct. 10, 1890 .....	1	3	10	400.00	14.50
Hornemann Jaeger .....	do .....	75 p. m.	May 1, 1890, to Aug. 31, 1890 .....	0	4	0	300.00	300.00
E. Bacholomew .....	do .....	20 p. m.	Dec. 1, 1891, to June 30, 1893 .....	1	7	0	380.00	380.00

## SPECIAL AGENTS, ETC., DEPARTMENT OF AGRICULTURE.

*Salary and expenses of special agents of the Department of Agriculture from July 1, 1889, to December 31, 1893, etc.—Continued.*

Name.	Title.	Salary.	Time of service.	Yrs. Mo. D.	Total salary.	Total expenses.	Grand total.
<i>Vegetable pathological investigations and experiments—Cont'd.</i>							
H. J. Webber	Special agent	\$1,200 p. a.	Sept. 15, 1892, to Dec. 31, 1893	1 3	\$1,552.75	\$193.81	\$1,746.56
W. T. Swingle	do	1,400 p. a.	Apr. 24, 1891, to Dec. 31, 1893	2 8	3,761.32	625.36	4,387.08
							25,733.02
							3,916.06
<i>Adulteration of food.</i>							
A. J. Wedderburn	Special agent	200 p. a.	July 1, 1889, to Aug. 14, 1893	4 1	14	3,916.06	3,916.06
<i>Fiber investigations.</i>							
Chas. R. Dodge	Special agent	6 p. d. { \$ 2,000 p. a. } 100 p.m.	J July 1, 1889, to Dec. 31, 1893 July 10, 1891, to Sept. 20, 1891	4 6	0	8,304.00	558.28
Eugene Bosse	do	900 p. a.	Nov. 1, 1891, to Dec. 31, 1892	0 2	10	233.33	170.74
Andrew Henderson	do	125 p. m.	Apr. 22, 1892, to June 30, 1892	1 2	0	1,125.00	404.07
R. M. Monroe	do			0 1	8	250.00	1,125.00
							250.00
							10,641.35
<i>Report on forestry.</i>							
D. M. Coffman	Special agent	1,500 p. a.	July 1, 1889, to Dec. 31, 1892	3 6	0	5,250.00	5,250.00
Filibert Roth	do	50 p. m. { 500 p. a. } 1,500 p. a.	Oct. 1, 1890, to Dec. 31, 1893	3 3	0	2,323.60	2,615.44
Charles Mohr	do	1,500 p. a.	Nov. 1, 1890, to Dec. 31, 1893	3 4	0	4,750.00	4,750.00
J. C. Arthur	Agent		Aug. 24, 1891	0 0			30.95
William Kent	Special agent	200 p. m.	Aug. 30, 1892	0 0		200.00	200.00
John Birkenbine	Agent	200 p. m.	July 16, 1892	0 0		200.00	200.00
							13,046.39
<i>Purchase, etc., of valuable seeds.</i>							
R. J. Whittleton	Special agent	1,600 p. a.	July 1, 1889, to Dec. 31, 1891	3 9	0	6,250.00	1,714.75
Enos S. Hamden	do	1,800 p. a.	Jan. 1, 1892, to Mar. 31, 1893	0 6	0	900.00	331.29
		1,800 p. a.	July 1, 1893, to Dec. 31, 1893				1,231.29
							9,196.04
<i>Agricultural experiment stations.</i>							
Gustav Gehrung	Special agent	100 p. m.	Apr. 1, 1891, to June 30, 1892	1 3	0	1,000.00	1,000.00
W. O. Atwater	do	1,800 p. a.	July 15, 1891, to July 31, 1893	1 11	16	4,182.65	341.48
		1,200 p. a.	Aug. 1, 1893, to Dec. 31, 1893				4,523.53
							5,523.53
<i>Experiments in the manufacture of sugar.</i>							
John Boazarth	Agent	1,200 p. a.	July 1, 1889, to Oct. 16, 1889	0 3	16	352.17	352.17
H. A. Hughes	do	1,800 p. a.	July 1, 1889, to Oct. 31, 1889	0 4	0	601.60	601.60

SPECIAL AGENTS, ETC., DEPARTMENT OF AGRICULTURE.

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E. W. Deming .....	1,200 p. a.	July 1, 1889, to Nov. 15, 1889 .....	0	4	15	450.01	450.01
A. A. Denton .....	1,200 p. a.	July 1, 1889, to June 30, 1893 .....	4	0	0	2,948.24	2,948.24
W. W. Cook .....	150 p. m.	July 1, 1889, to Sept. 30, 1890 .....	1	2	10	1,200.00	1,376.92
<i>Inquiries relating to public roads.</i>						5,728.94	
Roy Stone .....	2,500 p. a.	Oct. 3, 1893, to Dec. 31, 1893 .....	0	3	0	826.71	79.91
<i>Special agent and civil engineer.</i>						896.62	
<i>Bureau of Animal Industry.</i>							
Watson Pickrell .....	Agent .....	July 1, 1889, to Mar. 31, 1893 .....	3	9	0	11,750.00	15,394.00
W. J. Judson Smith .....	do	July 1, 1889, to Mar. 31, 1893 .....	3	9	0	11,640.00	16,042.00
J. H. Sanders .....	Special agent .....	July 1, 1890, to Mar. 1, 1891 .....	0	8	0	2,524.50	4,134.02
F. E. Parsons .....	Veterinary inspector .....	Nov. 13, 1890, to Feb. 28, 1893 .....	2	5	0	3,864.08	2,299.30
W. H. Wray .....	do	July 1, 1889, to Dec. 31, 1893 .....	4	6	0	12,572.00	5,779.18
J. F. Ryder .....	do	July 1, 1889, to Dec. 31, 1893 .....	4	6	0	6,459.00	4,166.10
Jacob Klotz .....	Agent .....	Apr. 1, 1893, to Dec. 31, 1893 .....	0	9	0	450.00	226.37
Edward Sheldren .....	do	Apr. 1, 1893, to Dec. 31, 1893 .....	0	9	0	1,480.00	676.37
J. C. Baldwin .....	Special agent .....	Aug. 1, 1892, to Jan. 31, 1893 .....	0	6	0	600.00	2,690.29
C. C. Georgeson .....	do	Jan. 1, 1893, to April 7, 1893 .....	0	3	0	910.00	600.00
A. G. Aspinwall .....	do	May 29, 1890, to Mar. 15, 1893 .....	2	9	13	3,355.49	3,355.49
<i>Artesian wells and irrigation investigations.</i>						79,913.98	
R. J. Hinton .....	Special agent .....	Apr. 14, 1890, to Apr. 15, 1892 .....	2	0	0	5,120.00	734.83
Lewis E. Hicks .....	do	Apr. 14, 1890, to Aug. 12, 1891 .....	1	4	8	1,230.00	5,854.83
J. W. Gregory .....	do	Apr. 14, 1890, to Nov. 30, 1892 .....	2	7	16	3,928.00	197.43
L. G. Carpenter .....	do	Apr. 14, 1890, to July 15, 1890 .....	0	3	0	3,928.00	5,234.14
Horace Beach .....	Expert .....	May 3, 1890, to June 30, 1890 .....	0	1	27	625.00	278.83
T. S. Underhill .....	Special agent .....	Apr. 16, 1890, to June 30, 1890 .....	0	2	14	210.00	120.77
Edwin S. Nettleton .....	Supervising engineer .....	Apr. 16, 1890, to Dec. 31, 1891 .....	1	8	14	360.00	300.77
P. E. Roessler .....	Special agent .....	Apr. 16, 1890, to July 31, 1890 .....	0	3	14	4,672.00	545.34
Stephen G. Pudliffe .....	do	Apr. 16, 1890, to June 30, 1890 .....	0	2	14	408.00	233.77
G. E. Culver .....	Special agent and assistant geologist .....	Apr. 16, 1890, to Aug. 15, 1891 .....	1	4	0	361.00	493.10
Robt. Hay .....	General field geologist .....	Apr. 14, 1890, to Dec. 31, 1891 .....	1	8	16	4,421.34	1,844.35
Gilbert E. Bailey .....	Special agent .....	Apr. 26, 1890, to June 30, 1890 .....	0	1	4	480.00	493.04
Fred F. B. Coffin .....	Special agent and engineer expert .....	May 5, 1890, to Dec. 15, 1891 .....	1	6	20	1,250.00	272.17
Robt. T. Hill .....	Assistant geologist .....	Oct. 16, 1890, to Nov. 1, 1891 .....	1	0	14	2,183.00	935.99
						3,119.21	

*Salary and expenses of special agents of the Department of Agriculture from July 1, 1892, to December 31, 1893, etc.—Continued.*

Name.	Title.	Salary.	Time of service.	Total salary.	Total expenses.	Grand total.
<i>Artesian wells and irrigation investigations—Continued.</i>						
Joseph Nimmro, Jr. ....	\$8 p. d.	Oct. 25, 1890, to Jan. 31, 1891	Yrs. 0	Mos. 3	Days. 5	\$468.81
W. W. Follett. ....	200 p. m.	Nov. 1, 1890, to Dec. 31, 1891	1	2	0	2,773.32
B. S. Laerange. ....	5 p. d.	May 7, 1891, to July 31, 1891	0	2	24	214.65
Joseph B. Greenwell. ....	100 p. m.	Apr. 16, 1890, to July 31, 1890	0	3	14	350.00
Mortimer A. Downing. ....	6 p. d. {	Apr. 18, 1890, to Aug. 31, 1892	2	4	12	1,987.00
Otis A. Critchett. ....	5 p. d. }	Dec. 28, 1892, to Mar. 8, 1893	0	2	11	627.30
E. T. Dumble. ....	8 p. d.	Apr. 16, 1890, to June 30, 1890	0	2	14	480.00
						45,310.14
<i>Experiments in the production of rainfall.</i>						
Robt. G. Dyrenforth. ....	10 p. d.	Feb. 27, 1891, to Nov. 30, 1892	1	9	0	1,400.00
						552.63
						1,952.63
						326,831.79

*Special agents employed in the Weather Bureau, Department of Agriculture, during the four years and six months ending December 31, 1893, with aggregate salaries and expenses in each case.*

SPECIAL AGENTS, ETC., DEPARTMENT OF AGRICULTURE.

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Name.	Title.	Salary.	Time of service.	Total salary.	Total expenses.	Grand total.
Bailey, L. H.....	Special agent.....	\$100 p.m.	Dec. 15, 1891, to Mar. 15, 1892.....	0	3	\$303.22
Battle, H. B.....	do	100 p.m.	Jan. 12, 1892, to June 30, 1892.....	0	5	591.41
Colf, Frank N.....	do	100 p.m.	do, 1891, to June 30, 1892.....	0	6	582.41
Hilliard, Ringenow W.....	do	100 p.m.	Mar. 1, 1892, to May 31, 1892.....	0	3	300.00
Hinrichs, Gustavus.....	do	250 p.m.	Dec. 15, 1891, to June 30, 1892.....	0	6	1,629.02
Keefer, J. E.....	do	100 p.m.	Dec. 28, 1892, to June 30, 1892.....	0	5	512.30
King, F. H.....	do	150 p.m.	Feb. 1, 1892, to June 30, 1892.....	0	5	750.00
Lond, Frank H.....	do	150 p.m.	Jan. 11, 1892, to June 30, 1892.....	0	5	851.61
Mell, P. H.....	do	100 p.m.	Feb. 1, 1892, to Sept. 30, 1892.....	1	2	1,387.33
Packard, Robert L.....	do	200 p.a.	Do. 27, 1892, to June 30, 1893.....	0	8	841.29
Rowland, Henry A.....	do	200 p.a.	Oct. 1, 1892, to June 30, 1893.....	0	6	300.00
Swainson, John.....	Special agent (Asst. marine agent)	100 p.m.	Jan. 1, 1892, to June 30, 1892.....	0	5	418.20
Tanner, E. T.....	Special agent.....	100 p.m.	Dec. 12, 1891, to Mar. 12, 1892.....	0	5	654.83
Waldo, Frank.....	do	100 p.m.	Dec. 15, 1891, to June 30, 1892.....	0	6	1,309.65
Ward, Robert do C.....	do	100 p.m.	Apr. 23, 1892, to June 30, 1892.....	0	2	226.67
Whitney, Milton.....	do	3,000 p.a.	Do. 15, 1891, to June 30, 1892.....	0	17	3,682.24
Wilson, W. P.....	do	2,400 p.a.	July 1, 1892, to Dec. 31, 1892.....	0	10	500.00
Townsend, Theodoro F.....	Inspector.....	50 p.m.	Jan. 1, 1893, to June 30, 1893.....	0	10	500.00
Bale, Henry C.....	do	1,800 p.a.	July 15, 1891, to Dec. 31, 1892.....	1	5	1,115.97
Conger, Norman B.....	do	1,800 p.a.	July 16, 1891, to Dec. 31, 1893.....	2	5	3,747.62
Whitehead, Mortimer.....	do	1,800 p.a.	Nov. 2, 1891, to Dec. 31, 1892.....	2	1	5,571.21
Smith, John W.....	do	1,800 p.a.	Feb. 16, 1892, to May 31, 1893.....	1	3	4,971.72
			Jan. 1, 1893, to Dec. 31, 1893.....	1	0	1,800.00
						2,082.51
						29,796.15
						33,721.30

Aggregate

Note.—The Weather Bureau was transferred to the Department of Agriculture July 1, 1891; no special agents were employed prior to that date.

*SPECIAL AGENTS OF THE U. S. DEPARTMENT OF AGRICULTURE—A REVIEW OF THEIR WORK AND THE SALARIES THEY RECEIVED DURING A PERIOD OF FOUR YEARS AND SIX MONTHS ENDING DECEMBER 31, 1893.*

In compliance with the resolution transmitted by James Kerr, Clerk of the House of Representatives, by T. O. Towles, chief clerk, asking that the Secretary of Agriculture furnish the House of Representatives a complete list of the names in the Department of Agriculture of the special agents who have, for various purposes and reasons, been appointed in and for said Department during the last four years and six months, the following names of special agents are submitted; and, in further compliance with the resolution referred to, the object for which each special agent was appointed, the duties supposed to rest upon him, the instructions he received, the reports he filed, and the remuneration and traveling expenses paid to him, are also herewith submitted.

The aggregate expenditure, as shown by the accompanying statement of the chief of the Division of Accounts and Disbursements of this Department, is \$326,831.79.

#### COLLECTING AGRICULTURAL STATISTICS.

A central office for the collection of statistics was established in London in 1882, at the office of the U. S. consul-general, and Edmund J. Moffat, of New York, was appointed special statistical agent in charge of the work; salary and expenses July 1, 1889, to October 31, 1892, \$8,992.38. After his connection with the Department had ceased, Mr. Merritt C. Ring was appointed in his stead; salary and expenses December 3, 1892, to May 1, 1893, \$1,271.44.

The duties devolving upon the European statistical agent are as follows:

- (1) To establish a system of European reports for monthly information of the status of growing crops in which American producers have a direct interest, such as the various cereals, tobacco, hops, etc.
- (2) To collect statistics of the meat-producing animals of the farm in European countries, with current changes in numbers and condition, and also of the production of stock on hand and prices of beef, mutton, pork products, butter, and cheese.
- (3) To make any investigation required from time to time of the facts and processes of European agriculture which may be deemed of advantage to the interests of American producers.
- (4) To utilize the opportunities offered by connection with the consular system of the United States, and those by courtesy and reciprocity accorded by the foreign consular service, to collect any special statistics which may be deemed of value in the regular and special work of the Division of Statistics of the Department of Agriculture.

George F. Hinton also served as a special agent in the collection of agricultural statistics August 8, 1890, to October 7, 1890, amounted to \$173.25.

John W. Hoyt was appointed to compile a special report on Wyoming. The report published as the result of his labor forms Bulletin No. 7 of the miscellaneous series, and is entitled An Agricultural Survey of Wyoming. Salary from October 27, 1891, to April 27, 1892, \$588.70.

## INVESTIGATING FOREIGN DEMANDS FOR UNITED STATES AGRICULTURAL PRODUCTS.

The appropriations out of which the following special agents have been employed reads as follows:

To enable the Secretary of Agriculture to continue investigations concerning the feasibility of extending the demands of foreign markets for agricultural products of the United States.

The first appropriation under this head occurs in the act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1892, amounting to \$2,500. This sum was increased the following year to \$10,000, the expenses for that year aggregating about \$7,600. The same sum was appropriated for the current fiscal year.

C. J. MURPHY.

The first special agent appointed under this appropriation was Col. C. J. Murphy, of New York, who was at the time of his appointment a special agent of the Statistical Division in Europe at a salary of \$2,000. His first appointment and instructions covered work for Great Britain and Ireland only. The entire amount of the first appropriation of \$2,500 was absorbed in his salary, no extra allowance being made for expenses.

A report of Col. Murphy's work in Great Britain was published. He had already, at his own expense, printed a report on the value of Indian corn, its uses and healthfulness as a human food, which he had distributed in large quantities in Great Britain and at exhibitions in Edinburgh and Glasgow, at the first of which he made an Indian corn exhibit with special reference to its use as human food, as a private citizen, being so engaged when appointed as a special agent of the Statistical Division, as above. The exhibition held in Glasgow, which lasted several months, he attended as an official of this Department. In the fall of 1891 the high price of cereals on the continent of Europe, and especially of rye, which formed then, as now, the principal bread diet of the people of Germany, induced Hon. J. M. Rusk, the Secretary of Agriculture, to order Col. Murphy to Germany to carry on his work in behalf of Indian corn in that country. Upon his detail to this mission he was authorized to charge necessary traveling expenses while on the continent, and also to charge for such supplies in the way of Indian corn and the preparations thereof as he might find necessary to procure in order to carry on the work.

The year 1892 showed a great increase in the imports of Indian corn into Germany, explained, *of course, very largely* by the high price of other cereal foods of that year. It was believed, however, that, inasmuch as the German people seem never to have used maize except for feeding live stock, efforts made to familiarize them with its availability as an economic and nutritious food for human beings were not without a marked effect, which has since subsided somewhat, in securing a demand in the German Empire for Indian corn. This assumption is, moreover, confirmed by the fact that during 1893, in spite of the generally reduced price of rye and other cereals following the large crop of 1892, exports of Indian corn to Germany have continued to increase even over the large importations of 1892. *Other nations, however, and especially Roumania, have contributed so large a share of these imports that there has actually been a reduction in the imports of Indian corn from the United States into Germany during the past year.*

Numerous inquiries received from the Scandinavian countries, and particularly Denmark, in reference to Indian corn, pending Col. Murphy's work in Germany, resulted in his being ordered to proceed to Copenhagen to carry on the work there in 1893. It should be stated that at the request of the Russian Government, made through the American minister at St. Petersburg, Col. Murphy had been previously detailed to proceed to Russia to instruct members of the relief committee, appointed during the famine in that country, in the use of Indian corn as human food. Since Col. Murphy's transfer to Copenhagen he has been engaged there continuously, with the exception of a few months spent in this country last summer, the liberal tariff policy of Denmark affording special facilities for commercial tourists in behalf of American products, cereals especially.

While in Copenhagen Col. Murphy has been largely instrumental in securing the importation into that country of Indian corn for brewing purposes and also some canned sweet corn, besides California dried fruits. During the few months spent by Col. Murphy in this country last summer, a part of which was accorded him as annual leave, he was engaged mostly at the World's Fair in Chicago in endeavoring to organize Indian corn kitchens for the purpose of introducing Indian corn and its various food preparations to the notice of the foreigners attending the fair, although Americans themselves probably consume less corn in bread than ever before. Salary and expenses, October 30, 1890, to January 24, 1894, \$13,162.94.

I. I. Murphy, a son of Col. Murphy, served for some time as a clerk under the foreign markets' appropriation, it having been deemed necessary by Secretary Rusk, when Col. Murphy was sent to Germany, to allow him clerical service, owing to the increase in his correspondence and the desirability of maintaining his connections in Great Britain, and also owing to the fact that he was not familiar with the German language, while Mr. I. I. Murphy was versed in both German and French. But Col. Murphy, last summer, having been entirely relieved from duty in Germany and central Europe, Mr. Ignatius Murphy's services were dispensed with.

In the fall of 1892, when it had been decided to send Col. Murphy to Denmark, it was thought advisable, in order to maintain the good work done in Germany up to that time, that a special agent especially familiar with Germany and the German people should be appointed to carry it on. Salary and expenses, January 1, 1892—July 15, 1893, \$1,928.24.

#### FRANK C. DEWEY.

On the strong recommendation of well-informed and influential persons Mr. Frank C. Dewey, a gentleman of American parentage, but of many years' foreign residence, and then in this country, and more or less familiar with Col. Murphy's work hitherto, was appointed special agent in Germany and central Europe with headquarters at Berlin; but the gentleman, having been subsequently found to be unsatisfactory in many ways was, dismissed from the service last March, this course having been already decided upon by Secretary Rusk under the previous administration. While serving as such special agent Mr. Dewey made a trip to Budapest, Hungary, for the purpose of investigating the extent and character of the Hungarian milling interest, Hungarian flour being the principal competitor of our American millers in central Europe. A report prepared by him on this subject was handed to the

Statistician of the Department and appeared in one of the statistician's monthly reports. Salary and expenses from October 1, 1892, to March 31, 1893, \$1,445.21.

JOHN MATTES, JR.

After the discharge of Mr. Dewey this gentleman, a native of Germany and an experienced brewer, familiar with the language, was sent to Berlin under commission covering that country, central Europe, and France. His attention was particularly directed, as his letter of instructions indicates, to investigate the conditions affecting the trade in that part of Europe for American cereals, especially Indian corn, American meats, and American tobacco. Favorable reports have been received from him, indicating the care and assiduity with which he is investigating all matters intended to throw light upon our trade in agricultural products in Germany and the possibility of extending it.

The present instructions of Col. Murphy and Mr. Mattes are practically on the same lines.

So far as Indian corn is concerned, Mr. Mattes is not encouraged as to the likelihood of extending its use in Germany as a human food. But he is hopefully directing his efforts to its greater use in brewing and distilling purposes as well as for stock-feeding. A carefully prepared treatise upon the best methods of utilizing Indian corn in the manufacture of beer as pursued in this country has been prepared by an eminent brewery chemist in Chicago, and large numbers of this pamphlet have been furnished to both Mr. Mattes and Mr. Murphy, printed both in German and English.

Mr. Mattes has effected arrangements for the experimental manufacture of beer with Indian corn at one of the leading German brewing schools, which is under the charge of persons recognized by the German brewing interests as eminently competent, and the results of this experiment and the official report thereon are anticipated with interest. Salary and expenses, from April 15, 1893, to June 20, 1894, \$4,300.80.

#### DIVISION OF BOTANY.

In accordance with the provisions of the law appropriating money to the Division of Botany, field agents have been employed at various times to make collections in various parts of the United States, and the material thus obtained, together with the economic notes accompanying them, have been inserted in the National Herbarium and devoted to the uses of the Division of Botany. In some cases special reports on the work of particular collectors have been made, but in general no such report has been issued; but the data collected have been used from time to time in general reports issued from the division. These field agents are not to be considered as special or extra agents, though necessarily often employed only for the growing season. They are, from the nature of the work, as regular employés as any in the division.

George R. Vasey was appointed to make collections of plants in various parts of the southern and western United States, with a special view to obtaining a knowledge of the forest trees of those regions. Mr. Vasey was employed from July 1, 1889, to October 31, 1889, a period of four months, at a salary of \$125 per month. Total salary, \$500. No expenses allowed.

Dr. Edward Palmer was employed to collect specimens and information in Arizona, New Mexico, southern California, Lower California, and Mexico. Dr. Palmer was engaged from July 1, 1889, to August

31, 1893, a period of four years and two months, a portion of the time at a salary of \$100 per month, a portion at \$150 per month, and a portion at \$175 per month; total salary, \$5,435.95; expenses (traveling, etc.), \$241.65. Total, \$5,677.60.

Greenleaf C. Nealey was employed to do similar work in southern and western Texas, and adjacent portions of New Mexico and Arizona. He was employed from July 1, 1889, to September 14, 1892, a period of three years, two months, and fourteen days, at a salary of \$150 per month; total salary, \$2,697.41. No expenses allowed.

F. F. Wood was similarly employed at intervals in northern Wisconsin and Minnesota, from July 1, 1889, to September 7, 1891, a period of two years, two months, and seven days, at a salary of \$150 per month; total, \$605. No expenses allowed.

Jesse H. Holmes was similarly employed, first in Nebraska, and later in southern New Jersey. He was engaged at intervals from July 1, 1889, to September 11, 1890, a period of one year, two months, and eleven days, at a salary of \$100 per month; total salary, \$375.36. No expenses.

T. V. Munson received a special commission for making observations upon the wild grapes of the southwestern United States, from Texas to western California, and to the State of Washington. His collections are deposited in the Division of Botany, and the data which he obtained constituted a portion of a report which has been presented to the Division of Pomology with a view to publication, consisting of a full account of the native grapes of the United States. Mr. Munson was engaged in this work from July 1, 1889, to September 30, 1889, a period of three months, at a salary of \$100 per month; total salary, \$300. No expenses allowed.

C. R. Orcutt was employed as a collector in southern California and northern Lower California, from January 1, 1890, to February 28, 1890, a period of two months, at a salary of \$100 per month; total salary, \$200. No expenses allowed.

President J. M. Coulter was employed as a special agent to prepare a work on the botany of western Texas, and, in addition, to write a detailed account of the cacti of the southwestern desert region. The report on the former subject has been completed and its final part has just been published. The manuscript report on the latter subject is expected within a few months. Mr. Coulter was engaged from December 17, 1889, to June 30, 1892, a period of two years, six months, and thirteen days, a portion of the time at a salary of \$150 per month, and a portion at \$100 per month; total salary, \$3,335.48; expenses (traveling, etc.), \$211.47; total, \$3,546.95.

J. H. Simpson was employed in middle eastern Florida as a collector of specimens from May 1, 1890, to May 15, 1892, a period of two years and fifteen days, a portion of the time at a salary of \$50 per month, and a portion of the time at \$150 per month; total salary, \$1,699.98. No expenses allowed.

B. B. Smyth was similarly engaged in western Kansas from July 14, 1890, to September 16, 1890, a period of two months, at a salary of \$100 per month; total salary, \$200. No expenses allowed.

William Patten and Frederick Funston were commissioned to make a collection of grass seeds in the State of North Dakota, to be used in the experiments carried on by the Department of Agriculture at Garden City, Kans., and at other points. In the season of 1891 Mr. Funston was sent to southeastern California and adjacent Nevada, in connection with the expedition to Death Valley. In the subsequent season he was detailed to make a collection of the forest trees and other plants occur-

ring in the vicinity of Yakutat Bay, Alaska. He has been detailed to Alaska a second time during the season of 1893-'94 to explore interior Alaska, the Yukon River to its mouth, and to make a full collection of the plants of that region. He is expected to return from that country in the autumn. Mr. Patten was employed from August 14, 1890, to October 14, 1890, a period of two months, at a salary of \$150 per month; total salary, \$299.98; expenses (traveling, etc.), \$431.03; total, \$731.01. Mr. Funston was employed from August 14, 1890, to December 31, 1893, a period of three years, four months, and sixteen days, a portion of the time at a salary of \$1,200 per annum, a portion at \$1,500 per annum, and a portion at \$185 per month; total salary, \$4,744.12; expenses (traveling, etc.), \$960.25; total, \$5,704.37.

James B. Olcott received a commission, without pay, to enable him to advance certain experimental work in the cultivation of turf grasses, which he has carried on in the State of Connecticut. Mr. Olcott was engaged from January 8, 1891, to June 30, 1891, working three months of the time; compensation, \$150. No other expenses.

M. A. Carleton was employed to collect in southeastern Kansas and Oklahoma Territory from April 15, 1891, to October 1, 1891, a period of five months and fifteen days, at a salary of \$150 per month; total salary paid, \$830. No expenses allowed.

P. A. Rydberg has been employed as a collector during two seasons; first, in the Black Hills of South Dakota; second, in the sand hill regions of Nebraska. He was engaged from June 12, 1891, to December 31, 1893, a period of two years, six months, and eighteen days; a part of the time at a salary of \$75 per month, a part at \$100 per month, and a part at \$600 per annum; total salary paid, \$695.90. No expenses allowed.

Dr. J. H. Sandberg conducted a pack train outfit in the mountains of northern Idaho during the season of 1892, and in the following year was associated with Mr. J. B. Leiberg in obtaining material for a report on the flora of the plains of the Columbia River in eastern Oregon. Dr. Sandberg was employed from May 1, 1891, to September 10, 1893, a period of two years, four months, and ten days; a portion of the time at a salary of \$150 per month, and a portion of the time at \$1,500 per annum; total salary, \$1,983.60; expenses (traveling, etc.), \$1,327.05; total, \$3,310.65.

D. T. MacDougal was employed during the season of 1891 in the mountains of northern Arizona, and during the following season he accompanied Dr. Sandberg in his work in Idaho. Mr. MacDougal was employed from May 1, 1891, to September 15, 1892, a period of one year, four months and fifteen days, a portion of the time at a salary of \$1,800 per annum, and a portion at \$1,200 per annum; total salary paid, \$504.96; expenses (traveling, etc.), \$111.85; total, \$616.81.

Charles S. Sheldon was employed in 1891 in eastern Indian Territory. He worked from June 12, 1891, to September 7, 1891, a period of three months, at a salary of \$150 per month; total salary, \$430. No expenses allowed.

L. M. Underwood was sent as a collector to Florida, and was employed from January 13, 1891, to February 13, 1891, a period of one month, at a salary of \$200 per month; total salary, \$200. No expenses allowed.

A. A. Heller was an assistant of Dr. Sandberg's in Idaho in the season of 1892, from April 15 to September 15, a period of five months, at a salary of \$1,200 per annum; total salary, \$504.96; expenses (traveling, etc.), \$138.70; total, \$643.66.

J. W. Toumey was appointed to make a collecting trip from Tucson to the northern border of the State of Arizona. He was employed from April 15, 1892, to July 31, 1892, at a salary of \$150 per month; total salary paid, \$150. No expenses allowed.

Prof. S. M. Tracey was first appointed in the year 1887 to investigate the grasses of the arid portions of Arizona, New Mexico, Nevada, and Utah, and the result of this investigation was published in Bulletin No. 6 of the Division of Botany. Mr. Tracey was subsequently employed to conduct experiments on the forage plants of the southern United States in Mississippi, Louisiana, Florida, Georgia, and North Carolina. Reports on this work have been made in several annual reports of the Botanist, and Prof. Tracey's final report on this subject has been submitted in manuscript, and is in press as a farmers' bulletin, entitled "Forage Plants for the South." Prof. Tracey was employed from July 1, 1891, to June 30, 1893, a period of two years, at a salary of \$50 per month; total salary, \$1,100; expenses (traveling, etc.), \$358.32; total, \$1,458.32.

Prof. F. A. Gulley was commissioned to conduct forage experiments at the agricultural experiment station of Arizona, and a manuscript report was submitted to the Division of Botany. Prof. Gulley was employed from July 1, 1891, to June 30, 1892, a period of one year, at a salary of \$200 per annum; total salary, \$200. No expenses.

Fred Clements was appointed to work in eastern Nebraska, and served from June 1, 1893, to September 10, 1893, a period of four months and ten days, at a salary of \$100 per month; total salary paid \$333.33. No expenses allowed.

C. H. Thompson was sent to southwestern Kansas and was employed from June 1, 1893, to August 31, 1893, a period of three months, at a salary of \$100 per month; total salary, \$300. No expenses.

Prof. George W. Curtis was employed in forage experiments in the State of Texas, and submitted a report on the same. He was engaged from July 1, 1891, to June 30, 1892, a period of one year, at a salary of \$200 per annum; total salary, \$200; expenses (traveling, etc.), \$12.60; total, \$212.60.

#### DIVISION OF ENTOMOLOGY.

Miss Mary E. Murtfeldt has been employed from time to time during the past twelve years for the purpose of studying the injurious insects of Missouri. Her instructions, in general, have been to make observations upon all insects which have become prominent as pests to agriculture in Missouri; to investigate their life histories with a view to the suggestion of remedies, etc. She has submitted brief reports, extracts from which have appeared in the annual reports of this Department. Her report for 1893, which may be taken as a specimen, consists of 24 manuscript pages. It contains remarks upon some 15 insects injurious to crops in Missouri during the past season. The important points in this report are presented by the Entomologist in less than a printed page of the Annual Report. She served continuously from June 30, 1889, to July 15, 1892, with the exception of May and June, 1892, when she was furloughed without pay. On April 1, 1893, she was appointed again and continued in service during that year. She was paid for three years, seven months, sixteen days in all, at \$50 per month, a total salary of \$2,174.19. No additional expense allowed.

Mr. Lawrence Bruner, a professor at the University of Nebraska, Lincoln, Nebr., also an officer of the agricultural experiment station there, was originally appointed to study the habits of the injurious

locusts of the Western States, and later to report upon the other injurious insects of Nebraska and adjoining States. Instructed accordingly, Mr. Bruner was sent upon several occasions, when alarm was felt at the increase of injurious locusts, on extended trips throughout the West. He filed an annual report, each year, of his employment, and submitted a number of special reports upon observations made during his trips. Abstracts of his reports have appeared in the annual reports of the Department, and in the bulletins of the Division of Entomology. Mr. Bruner is the author of Bulletin 28, Division of Entomology, entitled, "Destructive Locusts of America, North of Mexico." His reports upon locust conditions resulted in allaying the fears of Western farmers as to a near outbreak of migratory locusts. His report for 1893 consists of fourteen manuscript pages, and contains remarks upon the occurrence and injuries wrought by several varieties of locusts, and of a trip through western Nebraska and Wyoming during the month of August. A number of other insects are mentioned. The Entomologist gives a half page of his report to an abstract of this report. Mr. Bruner served from July 1, 1889, to December 31, 1893, in all four years, six months, at a compensation of \$50 per month; total amount of salary, \$2,600; expenses (traveling), \$574.67; total, \$3,174.67.

D. W. Coquillett was appointed for the purpose of investigating the injurious insects of southern California, particularly those which affect citrus crops. He was instructed to investigate the cottony cushion scale and to experiment with remedies to be used against it. He was sent to various points in California on special errands connected with the work of the Division of Entomology. In 1891 he was instructed to collect and ship to New Zealand and other points the Australian ladybird (*Vedalia cardinalis*), an enemy of the cottony cushion scale, which had been imported the previous year. He received instructions at various times with regard to special phases of the work. Mr. Coquillett has regularly filed an annual report and has also sent in at various times special reports upon specific investigations. His annual report for 1893 is in manuscript. A report on the production and manufacture of buhach, an insecticide material, was published in Bulletin 12. A number of shorter articles and reports have been used in the annual reports or published in *Insect Life*. He was employed from July 1, 1889 to December 31, 1893, at \$1,500 per annum. Total amount of salary paid, \$6,626.40; expenses, \$365.11; total, \$6,991.51.

Albert Koebele was originally an assistant in the division at Washington. He was sent to California in 1886 and remained there as a field agent until his resignation in the fall of 1893. His instructions were to study the methods of combatting the cottony cushion scale and to make a careful study of the injurious insects in the vicinity of San Francisco, where he was located. In 1888 he was sent to Australia to collect the natural enemies of the cottony cushion scale and send them in a living condition to California. He sent over the lady-bird (*Vedalia cardinalis*), which is reported to have exterminated this scale insect in California. In the spring of 1889 he was sent to Folsom, California, to study the insects injurious to the strawberry and other fruit-growing interests in that section. In 1890 he was sent to parts of northern California and Oregon to conduct experiments upon the grapevine phylloxera. In the spring of 1891 he was instructed to join Dr. C. Hart Merriam, of the Division of Ornithology and Mammology, upon an expedition to explore the Death Valley in southern California.

On his return from this expedition he was sent to Castroville, Cal., to investigate the damage done to sugar beets by a new insect pest. In August of the same year he was sent to Australia and New Zealand for the purpose of collecting insect enemies of injurious insects common to California and these colonies, returning in the summer of 1892. In the spring of 1893 he was sent to Oregon and Washington to study the hop plant-louse and remedies to be used against it. Later in the summer he was sent to make a tour of the localities where Australian importations of insects had been placed, to report upon their condition. Mr. Koebel sent in an annual report for every year of his employment and has furnished special reports upon all specific investigations. His reports have been used in the annual reports of the Department and in several bulletins of the division. He submitted no report for 1891, except his notes of collections on the Death Valley expedition and an account of his second mission to Australia. His report for 1893 is in hand in manuscript. He was employed from July 1, 1889, to December 31, 1893 (four years five months), at \$1,500 per annum. Total amount of salary paid, \$6,375; expenses (traveling), \$782.90; total, \$7,157.90.

Samuel Henshaw, Cambridge, Mass., was appointed June 29, 1887, for the purpose of preparing a complete bibliography of reports on North American economic entomology. A large amount of manuscript material, that had been prepared in the division, was turned over to Mr. Henshaw, and he was instructed to complete the work as rapidly as possible. In June, 1891, he was instructed to visit from time to time that portion of Massachusetts infested by the so-called gypsy moth for the purpose of reporting the condition of affairs. The Entomologist says, in a report to the Assistant Secretary, that "he reports at intervals." In fact, the Department has not received any finished work from him for publication since 1890. Previous to 1890 four small pamphlets, containing that portion of the bibliography credited to Dr. C. V. Riley and to Prof. Walsh, were published. This was, for the most part, the material which was turned over to Mr. Henshaw by the division, and which was edited and added to by him. Considering that such index-bibliographies usually take up the names of authors in alphabetical order, it is certainly remarkable that the letters "R" and "W" should have been published first, and that the published work has never proceeded beyond them.

The Entomologist represents that "the work as a whole is nearly completed." Mr. Henshaw was employed from July 1, 1889, to December 31, 1893 (the period of this report), at \$75 per month. Total amount of salary paid during this time, \$2,625. He was actually employed, in all, on this work four years nine months and fifteen days, and received the total amount of \$4,634.20. This would appear to be a large sum to pay for four small pamphlets, which are incomplete and comparatively useless in themselves. It is hoped that the Department will yet secure the completed manuscript of this report and that it may be found to be worth the money expended upon it. Mr. Henshaw was dropped on February 15, 1894, but he promises to complete the work without further expense to the Department.

F. M. Webster was appointed to investigate insects injurious to cereal crops and to report upon the injurious insects of the locality where he was stationed (La Fayette, Ind.). His instructions were in accordance with the above. He has studied these insects, first in Indiana and afterwards in Ohio, with a view to the preparation of a complete report on the general subject. In the course of the work he has been sent from one part of the country to another to study the depredations of insects

of different kinds. In 1888 he was sent to Australia to make a report upon the agricultural aspects of the Melbourne Exposition. Mr. Webster filed an annual report, covering the progress of his investigations, for each year of his employment, and abstracts of this report were used in the annual reports of the Department. His report of his trip to Australia is published in the report of the commissioner to the Melbourne Exposition issued by the Department of State. Other reports form parts of the various bulletins of the division. He has also sent in a large manuscript on insects affecting the corn plant, which has not yet been published. Mr. Webster was employed from July 1, 1889, to November 1, 1890, at \$1,200 per annum, and from November 1, 1890, to August 15, 1892, at \$1,500 per annum—three years one month and fifteen days in all. Amount of salary paid, \$4,287.44; expenses (traveling), \$589.10; total, \$4,876.54.

Herbert Osborn was appointed for the purpose of investigating insects injurious to domestic animals, and to study all injurious crop insects in the State of Iowa. He has also been ordered to other parts of the country in cases of emergency. His instructions were in accordance with the above. In 1887 he investigated the hop plant-louse in Wisconsin, and made a tour of observation in Mexico and Texas in 1891. In 1892 he was sent to Kansas to investigate an outbreak of injurious locusts. He has made several shorter trips. Mr. Osborn's early reports were not published, but were otherwise used in the division. Some of his later reports have been used in the annual reports and in the various bulletins. The first portion of his report upon insects injurious to live stock has been published in Bulletin 7 of the division. Mr. Osborn's report for 1893 consists of 13 pages, and contains remarks on the occurrence in the past season of 9 inconspicuous insects in the State of Iowa. The bulk of this report is devoted to a discussion of some experiments in hatching eggs of the horse botfly. The abstract of the report used by the Entomologist, in his annual report for 1893, is contained in less than one printed page. Mr. Osborn was employed from July 1, 1889, to December 31, 1893 (four years six months), at a salary of \$50 per month. Amount of salary paid, \$2,600; expenses (traveling), \$406.86; total, \$3,006.86.

J. G. Barlow was appointed for the purpose of investigating the early stages of the periodical cicada, and also to study injurious insects of his neighborhood. He received only the most general form of instructions and has not traveled for the Government. He reported by letter, and some of his observations have been incorporated in the notes of the division. No full separate report has been received from this agent. Mr. Barlow was employed from August 1, 1889, to September 30, 1893 (four years, two months), at a salary of \$50 per month. Amount of salary paid, \$600.

Prof. A. S. Packard was employed, after the practical transfer of the work of the United States Entomological Commission to this division, to finish Bulletin 7 of the commission, which was an account of insects injurious to forest and shade trees in the United States. He has since been reemployed from time to time to make further investigations on insects injurious to forest trees in New England. Dr. Packard's instructions were of the most general character and in accordance with the above. He has investigated during the summer season the forest insects of New England, and upon one occasion was sent to the South along the Atlantic coast to study similar insects in that part of the country. He has filed every year of his employment an annual report of the results of his investigations. He completed the elaborate vol-

ume, published by the Department and called the Fifth Report of the United States Entomological Commission, comprising "Insects Injurious to Forest Trees." His other reports appear in the annual reports of the Department and in the bulletins. Shorter reports have been published from time to time in *Insect Life*. Prof. Packard was employed from April 1, 1890, to September 30, 1893 (three years and six months), at a salary of \$75 per month. Amount of salary paid, \$1,050. No additional expense.

Nathan Banks was appointed an agent and stationed at Washington. He was instructed to hold himself subject to emergency work in the field, and was sent to Shreveport, La., in 1891, to assist Mr. Mally in fieldwork on the cotton bollworm; thence he was sent to Texas, to Florida, and other parts of the South. The results of his work on the bollworm were incorporated with Mr. Mally's report on that subject and published as Bulletin 29 of the division. Reports of his other trips were duly filed, but have never been published. Mr. Banks was employed from July 1, 1890, to July 30, 1892 (two years, one month), at a salary of \$75 per month. Amount of salary paid, \$1,582.26; expenses (traveling), \$307; total, \$1,889.26.

Prof. J. F. McNeill was appointed temporarily to assist in experimentation with remedies against the cotton bollworm. He was instructed to station himself at Pine Bluff, Ark., and conduct field experiments with different insecticides. A full report covering the results of his investigations was sent in and has been used in the preparation of Bulletins 24 and 29 of the division. Prof. McNeill was employed from July 15, 1890, to October 31, 1891 (one year, three months, sixteen days), at a salary of \$100 per month. Amount of salary paid, \$1,211.97; expenses (traveling), \$158.70; total, \$1,370.67.

Dr. A. R. Booth was appointed to investigate the fungus and bacterial diseases of certain caterpillars with the idea of endeavoring to convey such disease to the bollworm and the cotton worm. His instructions were of a general nature and covered the object of his appointment. The chief of the division says:

At the termination of his commission Dr. Booth filed a report, which has not been used on account of its incompetent character.

Dr. Booth was employed from August 1, 1890, to November 30, 1890 (four months), at a salary of \$100 per month. Amount of salary paid, \$400; expenses (traveling), \$214.43; total, \$614.43.

Prof. A. J. Cook was appointed to conduct experiments in apiculture at Agricultural College, Mich. Full instructions were sent regarding the line of experiments to be carried out, and in August, 1891, the agent was called to Washington for a personal consultation with the Entomologist. Prof. Cook's report of his 1891 experiments is published in Bulletin 26 (p. 83). He was employed from January 1, 1891, to June 30, 1891 (six months), at a salary of \$50 per month. Amount of salary paid, \$300. No additional expense.

J. H. Larrabee was appointed originally to assist Prof. Cook in his apicultural experiments, and was recommissioned to continue after the expiration of Prof. Cook's term of employment. A special series of experiments was mapped out for this agent to carry out. The results of his work under his first commission are incorporated in Prof. Cook's report upon apicultural experiments in 1891, published in Bulletin 26 (p. 83). His report of his experiments during 1892 was published in Bulletin 30 (p. 57). Mr. Larrabee was employed from January 1, 1891, to August 15, 1892 (one year, seven months, and fifteen days), at a sal-

ary of \$1,000 per annum. Amount of salary paid, \$1,374.96; expenses (traveling), \$51.08; total, \$1,426.04.

F. G. Schaupp was appointed to make field observations on the injurious insects of Blanco County, Tex. Special instructions were sent by the Entomologist concerning certain insects of that portion of Texas which needed investigation. Mr. Schaupp reported his results by frequent letters and by sending in specimens. No formal report was filed or published, although the results of his observations have appeared in notes in *Insect Life*. He was employed from February 20, 1891, to January 14, 1892 (ten months, twenty-two days), at a salary of \$100 per month. Amount of salary paid, \$400. No additional expense.

Otoji Takahashi was appointed to study the insects injurious to cultivated crops in Japan, and particularly those occurring upon trees and shrubs which are being introduced into the United States, the object being to gain a knowledge of such injurious insects as are likely to be imported in this way. Full lists of the plants being imported into the United States from Japan were sent to Mr. Takahashi, and he was instructed to collect and observe all insects affecting these species, and particularly those affecting citrus trees. A full report covering the results of his observations on the Japanese insect enemies of citrus trees has been received, but has not yet been published. He was employed from January 1, 1893, to April 30, 1893, at a salary of \$30 per month, and from May 1, 1893, to August 31, 1893, at a salary of \$50 per month (eight months). Amount of salary paid, \$320. No additional expense.

Richard S. Lull was appointed to conduct certain experimental work with insecticides and insecticide machinery. He was stationed at College Park, Md. (where the chief of the division has held an appointment as entomologist), and was given a series of insecticides for experiment upon such injurious insects as should be found in that locality. Mr. Lull reported to his chief in writing and in person almost every week. His reports have not been published. He was employed from June 22, 1893, to December 31, 1893 (six months and eight days), at a salary of \$1,000 per annum. Amount of salary paid, \$524.73. No additional expense.

Robert Milliken was commissioned to make a journey through portions of Idaho for the purpose of learning the truth concerning the reports of damage by injurious locusts. He was instructed to make the trip speedily and to spend not more than \$100, and report upon the condition of affairs. A report was received and has been published in No. 1, Vol. vi, *Insect Life*. Mr. Milliken was employed from July 10, 1893, to August 9, 1893, and received no salary, but was paid \$14.75 for expenses.

#### DIVISION OF ORNITHOLOGY AND MAMMALOGY.

The agents in the Division of Ornithology and Mammalogy are mostly field agents, and not in any proper sense special or extra agents. Though often employed for only a portion of the year, they are as regular and necessary as any other employés in the Department.

Vernon Bailey has been employed in making biological investigations illustrating the distribution and economic status of North American birds and mammals. His reports are mainly in manuscript, filed in the Division of Ornithology. A small part of them have been published in the Annual Report for 1887 (pp. 426-454); Annual Report for 1892 (pp. 185-193), and in Bulletin No. 4, 1893. Others have been utilized in

the preparation of other bulletins and reports, particularly Bulletin No. 5, and North America Fauna, Nos. 3, 4, 5, 6, and 7. Mr. Bailey was engaged from July 1, 1889, to December 31, 1893, a period of four years and six months, a portion of the time at a salary of \$1,500 per annum and a portion at \$1,800 per annum; total salary, \$6,300. No expenses allowed.

A. B. Baker was employed in making biological investigations on the Great Plains during a single season, and has filed reports on this work. He was engaged from July 1, 1889, to July 15, 1889, a period of fifteen days, at a salary of \$100 per month; total salary, \$48.39. No expenses allowed.

C. S. Brimley was temporarily engaged in making investigations and collections in the South, the results of which are covered in his reports. He was employed from July 17, 1890, to September 16, 1890, a period of two months, at a salary of \$100 per month; total salary, \$201.72. No expenses allowed.

Basil Hicks Dutcher was engaged in similar investigations, and the results of his work have been utilized in the preparation of the following reports: North American Fauna, Nos. 5, 6, and 7; and Bulletin No. 4. Mr. Dutcher was employed from June 23, 1890, to September 30, 1892, a period of two years, three months, and seven days, a portion of the time at a salary of \$75 per month and a portion of the time at \$1,200 per annum; total salary, \$566.12. No expenses.

William Lloyd has been engaged in making biological investigations and collections illustrating the distribution of species in Texas, and has filed numerous reports thereon. He was employed from July 1, 1890, to April 1, 1892, a period of one year and nine months, a portion of the time at a salary of \$125 per month, a portion at \$1,400 per annum, and a portion at \$1,000 per annum; total salary, \$1,890.80. No expenses.

E. W. Nelson has been employed in similar work, and his voluminous reports, covering several hundred pages, have been and are being used in connection with the general investigations of the division. Mr. Nelson was employed from November 1, 1890, to December 31, 1893, a period of three years and two months, a portion of the time at a salary of \$100 per month, and a portion at \$1,800 per annum; total salary, \$4,500. No expenses allowed.

E. A. Goldman has been employed as Mr. Nelson's assistant, working from March 1, 1892, to December 31, 1893, a period of one year and ten months, a portion of the time at a salary of \$75 per month, a portion at \$900 per annum, and a portion at \$100 per month; total salary, \$1,687.48. No expenses.

Russell J. Thompson has been employed in making biological investigations in the South, particularly in the Mississippi Valley, and has furnished special reports on each area in which work was done. He was engaged from April 1, 1892, to November 30, 1892, a period of eight months, a portion of the time at a salary of \$100 per month, and a portion at \$1,000 per annum; total salary, \$715.80. No expenses.

J. Alden Loring has been engaged in investigating the geographic distribution and economic relations of species in various parts of the West, and has filed numerous reports thereon. He was employed from April 1, 1892, to December 31, 1893, a period of one year and nine months, a portion of the time at a salary of \$100 per month, and a portion at \$1,200 per annum; total salary, \$2,100. No expenses.

Edward A. Preble was engaged in making investigations illustrating the geographic distribution and economic status of various species of mammals and birds, particularly the pocket gophers, and has filed

numerous manuscript reports on this work. Mr. Preble was employed from April 1, 1892, to September 30, 1892, a period of six months, a portion of the time at a salary of \$1,000 per annum, and a portion at \$1,200 per annum; total salary, \$550. No expenses.

George A. Coleman was employed in similar work in the Mississippi Valley. His reports have been filed in the division and utilized in investigations still in progress. Mr. Coleman was employed from April 15, 1892, to September 16, 1892, a period of five months, a portion of the time at a salary of \$100 per month, and a portion at \$1,200 per annum; total salary, \$503.33. No expenses.

Fred. W. Koch was employed in California, but was taken ill almost immediately and was obliged to resign at the end of a week. He was engaged from July 10, 1893, to July 16, 1893, a period of seven days, at a salary of \$100 per month; total salary, \$22.58. No expenses.

J. Ellis McLellan is employed in investigating the geographic distribution and economic status of birds and mammals in California, and has contributed numerous reports thereon. He was engaged from July 25, 1893, to December 31, 1893, a period of five months and seven days, at a salary of \$100 per month; total salary, \$522.58. No expenses.

These field agents have all been engaged in the same work, and acting substantially under the same instructions. They are engaged in making biological investigations and collections illustrating the geographic distribution and economic status of North American birds and mammals. They have sent in hundreds of reports, aggregating thousands of pages, on the fauna and flora of a very large number of localities. These reports form the basis of a large part of the regular work of the division. The necessary investigations must be made in the field, and the results elaborated in the office. The work imposed upon this division by Congress is the study of the geographic distribution and food habits of North American birds and mammals, and field-work must therefore always be the most prominent feature of its activity.

#### THE DIVISION OF POMOLOGY.

T. T. Lyon was appointed to represent the division at various State and National Horticultural Society meetings in the Southwest and West to inform such societies of the purpose and work of the Division of Pomology; to secure the coöperation of fruit-growers; to gather as well as impart pomological information; to secure specimens of promising new fruits for description and modeling; to aid in identification of new varieties; and also to revise the nomenclature of American fruits and prepare a descriptive catalogue of such varieties for publication. His reports have consisted only of numerous letters on file in the office of the Pomologist, regarding the meetings of various societies, and accompanied by many specimen fruits for modeling. Mr. Lyon was employed from August 1, 1890, to December 31, 1893, a period of three years and five months, at a salary of \$900 per annum; total salary, \$3,074.20; expenses (traveling, etc.), \$341.26; total, \$3,415.46.

A. J. Philips was instructed to represent this division at meetings of county horticultural societies in Wisconsin, Iowa, and Minnesota, to inform the members of such societies in regard to the work of the division, and to inspect certain orchards with a view to determining what varieties are best suited to the North and Northwest. Letters received from time to time after such meetings and inspections constitute the only reports received from this agent. Mr. Philips was employed from April 1, 1891, to December 31, 1892, a period of one year and nine

months, at a salary of \$1,200 per annum; total salary, \$2,001.10, expenses (traveling, etc.), \$370.55; total, \$2,371.65.

William R. King was instructed to investigate the culture and varieties of the kaki (Japanese persimmon) in Georgia and Florida, and report conclusions. Report made in autumn of 1891 and published in Report of Pomologist for 1891 (pp. 385-387). Mr. King was employed from September 25, 1891, to October 25, 1891, a period of one month, at a salary of \$100 per month; total salary, \$100.64; expenses (traveling, etc.), \$105.08; total, \$205.72.

John S. Harris was instructed during his two months' service in 1890 to investigate the pomology of the Northwest, including wild fruits; to visit the orchards of Minnesota, and perhaps of Dakota and Wisconsin. Recommissioned for three months in 1892 to continue same work. Mention is made in correspondence on file of a report received from him January 7, 1891. This report has not been published and can not now be found. It was probably sent to writer for revision and never returned. A report on fruit culture in Minnesota, Wisconsin, South Dakota, and Iowa was received in December, 1892, and is included in published report of Pomologist for 1892, pp. 270-280. Mr. Harris was employed from August 1, 1892, to November 1, 1892, a period of three months, at a salary of \$900 per annum; total salary, \$225.00; expenses (traveling, etc.), \$41.63; total, \$266.63.

#### DIVISION OF VEGETABLE PATHOLOGY.

Newton B. Pierce was appointed a special agent for the purpose of investigating the virulent vine disease of California and other plant diseases occurring on the Pacific coast. His duties involve both laboratory and field studies, having in view the discovery of the mode of action and general life history of the parasites, studies, and practical efforts for their repression. He has published articles in several agricultural papers and in the Journal of Mycology (issued by the Department), together with a bulletin on the California vine disease. Some of the papers are, "The California vine disease," Bulletin No. 2, Division of Vegetable Pathology, U. S. Department of Agriculture, 1892, p. 222, pl. 27; "Tuberculosis of the olive," Journal of Mycology, Vol. VI, 1891, pp. 148-153, pl. 2; "A disease of almond trees," Journal of Mycology, Vol. VII, 1892, pp. 66-77, pl. 4; "The mysterious vine disease," Annual Report State Board of Horticulture of California for 1890, pp. 169-177. Mr. Pierce was employed from July 1, 1889, to December 31, 1893, a period of four years and six months, a portion of the time at a salary of \$1,500 per annum and a portion at \$150 per month; total salary, \$6,866.21; expenses (traveling, etc.), \$592.75; total, \$7,458.96.

Dr. Erwin F. Smith was appointed a special agent for the purpose of investigating the disease of peaches known as "yellows;" and at the same time such other maladies affecting the peach and allied fruits as were brought to notice. His work involves studies in the field and laboratory, with special relation to the cause and prevention of these diseases. He received no special instructions, but his work was at all times under the direction of the chief of this division. He has published three bulletins, Nos. 1, 4, and 9, upon the subjects of peach yellows, besides many other shorter papers. The bulletins and some of the shorter papers are: "Peach yellows," Bulletin No. 9, Section of Vegetable Pathology, U. S. Department of Agriculture, 1889, p. 254, pl. 36; "Additional evidence on the communicability of peach yellows and peach rosette," Bulletin No. 1, Division of Vegetable Pathology, U. S.

Department of Agriculture, 1893, p. 197, pl. 33; Field notes, 1890, Journal of Mycology, Vol. VI, 1891, pp. 107-110; Field notes, 1891, Journal of Mycology, Vol. VII, 1892, pp. 88-95; "Peach blight," Journal of Mycology, Vol. VII, 1891, pp. 36-39; "Peach rosette," Journal of Mycology, Vol. VI, 1891, pp. 143-148. Dr. Smith was employed from July 1, 1889, to December 31, 1893, a period of four years and six months, at a salary of \$1,800 per annum; total salary, \$8,100; expenses (traveling, etc.), \$820.92; total, \$8,920.92.

A. W. Pearson was appointed a field agent to make experiments in New Jersey for the prevention of grape diseases. These experiments consisted of treatments with various remedies discovered by the Division of Vegetable Pathology as the result of laboratory and other investigations. Mr. Pearson's report is published in Bulletin No. 10, of Section of Vegetable Pathology, 1889, pp. 13-19. A second report appears in Bulletin No. 11, 1890, pp. 41-49, pl. 2. Mr. Pearson was employed from July 1, 1889, to August 31, 1889, a period of two months, at a salary of \$50 per month; total salary, \$100. No expenses allowed.

Frank S. Earle was appointed a field agent for the purpose of experimenting with remedies for the diseases of plants, more especially those peculiar to Southern fruits. In his case, as in those of all the field agents, specific directions were given in regard to remedies to be used, means of applying the same, and instructions as to methods of making the report. The field agents were in all cases residents of the region in which the experiments were to be carried on. Mr. Earle's report is published in Bulletin No. 11, of the Section of Vegetable Pathology, 1890, pp. 83-88. Mr. Earle was employed from July 1, 1889, to September 15, 1889, a period of two months and fifteen days, at a salary of \$50 per month; total salary, \$125. No expenses.

A. M. Howell was appointed a special field agent to make experiments in the treatment of diseases of the grape and other plants. His instructions were practically the same as those of Mr. Earle, and his reports appear in Bulletin No. 10, of the Section of Vegetable Pathology, 1889, pp. 35-48; and in Bulletin No. 11, Section of Vegetable Pathology, 1890, pp. 49-65. Mr. Howell was employed from May 1, 1890, to June 30, 1890, a period of two months, at a salary of \$75 per month; total salary, \$150. No expenses.

J. B. Ellis was appointed a special agent for the purpose of aiding the division in the determination or naming of specimens of fungi sent in to the division from all parts of the country. Mr. Ellis is an expert in this sort of work, and no special instructions were needed, it being, however, a part of the agreement that he should name all material sent him, and also send the division from time to time such specimens as he might think of interest and value to the herbarium. Mr. Ellis has never made any special report, none being needed, since his reports upon specimens sent him have been made in his letters to the division. Mr. Ellis was employed from July 1, 1889, to December 31, 1893, a period of four years and six months, at a salary of \$25 per month; total salary, \$1,350. No expenses.

H. L. Lyman was appointed a special agent to make practical experiments under the direction of the Division of Vegetable Pathology in the treatment of various diseases of grape, such as downy mildew, black rot, anthracnose, etc. He was instructed to test remedies and spraying apparatus, and to report upon results. His reports will be found in Bulletin No. 10, of Section of Vegetable Pathology, 1889, pp. 20-28. Mr. Lyman was employed from May 1, 1890, to August 31, 1890, a period

of four months, at a salary of \$100 per month; total salary, \$400. No expenses.

F. W. Anderson was appointed a special agent for the purpose of making collections of fungi affecting the economic plants of the Northwest, especially in Montana. The work was mainly devoted to fungi affecting grasses and other forage plants of that State. A short report of his work is given in the Report of the Department of Agriculture for 1888, p. 326. Mr. Anderson was employed from July 1, 1889, to October 10, 1890, a period of one year three months and ten days, a portion of the time at a salary of \$50 per month and a portion at \$100 per month; total salary, \$400; expenses (traveling, etc.), \$14.50; total, \$414.50.

Hermann Jaeger was appointed a special agent for the purpose of experimenting with remedies for diseases of the grape. His work was practically of the same character as that of Messrs. Earle, Howell, Lyman, and Pearson, and his reports are published in Bulletin No. 10, of the Section of Vegetable Pathology, 1889, pp. 29-34; and in Bulletin No. 11, pp. 65-69. Mr. Jaeger was employed from May 1, 1890, to August 31, 1890, a period of four months, at a salary of \$75 per month; total salary, \$300. No expenses.

E. Bartholomew was appointed a special agent for experimenting in preventing rust of wheat. His instructions gave directions for treating the soil and seed before planting, as well as spraying and otherwise treating the plants after they had appeared above ground. His report is published in Journal of Mycology, Vol. VII, 1893, pp. 218-225. Mr. Bartholomew was employed from December 1, 1891, to June 30, 1893, a period of one year and seven months, at a salary of \$20 per month; total salary, \$380. No expenses.

W. T. Swingle was appointed a special agent for the investigation of diseases of various plants. He is now engaged in the study of various diseases of citrous fruits, and is permanently located in Florida. His work is both field and laboratory, and consists of studies for the purpose of gaining a knowledge of the life history of various parasitic diseases, together with methods of preventing them. Though called an agent, he is to all intents and purposes a regular member of the staff. Mr. Swingle was employed from April 24, 1891, to December 31, 1893, a period of two years, eight months, and six days, at a salary of \$1,400 per annum; total salary, \$3,761.52; expenses (traveling, etc.), \$625.56; total, \$4,387.08.

H. J. Webber was associated with Mr. Swingle, and was appointed to study with him the diseases of citrous fruits and other subtropical plants. He bears the same relation to the division as Mr. Swingle. Mr. Webber was employed from September 15, 1892, to December 31, 1893, a period of one year, three months, and fifteen days, at a salary of \$1,200 per annum; total salary, \$1,552.75; expenses (traveling, etc.), \$193.81; total, \$1,746.56.

#### ADULTERATION OF FOOD.

Mr. Alexander J. Wedderburn, because of his superior scholastic attainments and knowledge of chemistry, no doubt, as well as his long experience as a manufacturer and dealer in commercial fertilizers (which, everyone knows, can not be adulterated successfully), was appointed by the Secretary of Agriculture July 1, 1889, at a salary of \$200 per month, to collect information as to the extent and character of food adulterations in the United States. The learned and useful

reports of Mr. Wedderburn are published as Bulletins Nos. 25 and 32, and in Farmers' Bulletin No. 12 (pp. 6-8). Besides the great and exhaustive labor incident to the collection of information as above, Mr. Wedderburn also collected and partially prepared for publication a list of the laws of the various States of the American Union relative to the adulteration of food. This valuable manuscript has been prepared for publication at the special request of the Agricultural Committee of the House of Representatives, who have inserted a clause in the appropriation bill for 1894-'95 ordering its publication by this Department. With great alacrity and zeal the publication will be commenced as soon as the bill shall have become a law.

Mr. Alexander J. Wedderburn was upon the pay-rolls of the U. S. Department of Agriculture at \$200 per month, engaged at intervals from July 1, 1889, to August 14, 1893, a period of four years, one month, and fourteen days, receiving for these services the insignificant sum of \$3,916.06. As a popular writer for various bucolic organizations, and as a self-sacrificing friend of agriculture and its devotees, Mr. Wedderburn has achieved a most enviable reputation, and it may by many be deemed false economy to have lost his services for the sake of saving only \$200 a month, because such talent and capability as his are not common, even in the United States of America.

#### OFFICE OF FIBER INVESTIGATIONS.

Charles Richards Dodge, special agent, was appointed to take charge of the fiber investigations of the Department of Agriculture. He has been a practically permanent officer, with office at the Department in Washington. His duties were to obtain information relating to the culture, preparation, and manufacture of vegetable fibers, the growth of which may lead to the establishment of new industries in this country; to supply expert information to the public on all matters relating to vegetable fibers, by special correspondence and through the reports issued from his office; to direct experiments in culture and the testing of mechanical devices thought to be of value in the establishment of fiber industries—such as special agricultural machines, and those for cleaning the fibers, etc.

He has prepared reports as follows:

- Bulletin No. 1. Flax, Hemp, Ramie, and Jute. 1890.
- Bulletin No. 2. The Ramie Industry. 1891.
- Bulletin No. 3. Sisal Hemp Culture. 1891.
- Bulletin No. 4. Flax Culture for Fiber. 1892.
- Bulletin No. 5. The Leaf Fibers of the United States. 1893.
- Special Report on the Ramie Machine Trials at New Orleans, 1892.
- Annual Reports for 1890, 1891, 1892, and 1893.

One bulletin is in press and two others are in preparation. Two special reports were published in Vols. II and V, Paris Exposition Reports, 1891. Mr. Dodge was employed from July 1, 1889, to December 31, 1893, a period of four years and six months, a portion of the time at \$6 per day and \$2,000 per annum; total salary, \$8,304; expenses (traveling, etc.), \$558.28; total, \$8,862.28.

Eugene Bosse, St. Paul Park, Minn., was appointed for two months and a half to visit farmers in the Northwestern States engaged in flax culture for seed, to give them practical instructions regarding the best methods of culture for fiber. He was also directed to report upon the progress and possibilities of flax-fiber culture in the sections visited. He made weekly progress reports, extracts from which were published in Bulletin 4, Fiber Investigations; and at the close of his labors he

made a flax-culture report that was published entire in the same bulletin. It is reported that "as he was able to secure free railway transportation over a portion of the territory covered, his expenses were considerably reduced." Mr. Bosse was employed from July 10, 1891, to September 20, 1891, a period of two months and ten days, at a salary of \$100 per month; total salary, \$233.33; expenses (traveling, etc.), \$170.74; total, \$404.07.

Mr. R. M. Munroe, Cocoanut Grove, Fla., was appointed for May and June, 1892, to continue investigations and experiments, particularly with pineapple fiber, in southern Florida. He was paid a salary of \$125 a month for the work, with the understanding that he was to furnish, at his own expense, labor, power to drive the machinery, sailing vessel for collection of the leaves, and all expenses of cutting and transporting leaves to the experimental factory. He performed the work assigned him to the full satisfaction of the Department, and made a valuable report, extracts from which were published in Bulletin 5, Fiber Investigations. Mr. Munroe was employed from April 22, 1892, to June 30, 1892, a period of one month and eight days, at a salary of \$125 per month; total salary, \$125; no other expenses.

In regard to Andrew Henderson, of Florida, Mr. Dodge, in charge of the fiber investigations, says:

Mr. Henderson was not a special agent for the Office of Fiber Investigations, though he was carried on that roll. I assented to his being placed on the fiber investigations roll for three months in the spring of 1892, though I was unable to make any use of his services. He was continued on the roll through six or seven months of the next fiscal year (1892-'93) against my repeated protest, and I know nothing concerning his work for the Department or reports made by him. Therefore, I respectfully refer you to Hon. Edwin Willits, who will be able, doubtless, to give you the desired information.

No further information is on file. Mr. Henderson was employed from November 1, 1891, to December 31, 1892, a period of one year and two months, at a salary of \$900 per annum; total salary, \$1,125; no other expenses.

#### DIVISION OF FORESTRY.

D. M. Coffman, of Rockwood, Tenn., was appointed at the request of Hon. L. C. Houk, M. C. The chief of the Division of Forestry says that the reasons for this appointment were not known to him, and that Mr. Coffman was appointed without his request or approval. His instructions say that he was to report on the conditions of woodworking establishments in Tennessee and to collect forest botanical specimens. He submitted reports as follows: One entitled "Woodworking Industries of Tennessee," 24 pages of tables, and another entitled "Cooperage Industry of Tennessee," 18 pages, not published. Mr. Coffman was engaged from July 1, 1889, to December 31, 1892, a period of three years and six months, at a salary of \$1,500 per annum; total salary, \$5,250. No expenses.

John Birkinbine, of Philadelphia, Pa., was appointed to report on the relation of the charcoal industry to forestry. He was probably the best informed man in the United States on the subject, being the secretary of the U. S. Charcoal Iron Workers Association. He was instructed to furnish one report. His report on "Charcoal Industry" was duly prepared and submitted. Mr. Birkinbine was engaged for a period of one month, beginning July 16, 1892, at a salary of \$200 per month; total salary, \$200. No expenses allowed.

Prof. Charles Mohr, of Mobile, Ala., special agent, was appointed as expert in the life history of forest trees and Southern forest resources,

and to collect material to be tested in the experiments on the structure of timbers. He was the most competent man in the country for the purpose, having forty years of experience in the study of Southern forest botany. He was instructed to report on the important conifers of the South; to collect timber-test material and describe the conditions of its growth. He has submitted valuable monographs on the life history of the long-leaf, short-leaf, and loblolly pines, which await publication; reports on 359 trees collected; and minor reports on regions visited, specimens collected, etc. Prof. Mohr was engaged from November 1, 1890, to December 31, 1893, a period of three years and four months, at a salary of \$1,500 per annum; total salary, \$4,750. No expenses allowed.

William Kent, of New York City, special agent, was appointed to assist in the elaboration of timber-test work; he was considered a competent man and available for this purpose. He was instructed to report upon a practical method of correlating results in timber examinations. He made a report on several methods of doing this. Mr. Kent was engaged for one month, beginning August 30, 1892, at a salary of \$200 per month; total salary, \$200. No expenses allowed.

Prof. J. C. Arthur, of La Fayette, Ind., was appointed to report on the causes of the death of trees in Cleveland, Ohio, as a matter of general interest to all other cities; he was professor of botany in Purdue University and available with least expense for this work. He has submitted his report as instructed. Prof. Arthur was appointed August 24, 1891, without salary, but was allowed \$30.95 for expenses (traveling, etc.).

Filibert Roth, of Ann Arbor, Mich., was appointed to act as timber expert and carry on the physical and structural investigations into the structure of timbers used in construction and similar work. He had devoted over six years of preparatory study to this particular work and had been employed on such work during a part of this time by the Department itself. He was instructed to carry on the physical and structural examination of test material employed in the timber tests, to study the relations of strength to conditions of growth, to study the rate of growth of building timbers, to prepare correspondence requiring expert advice on the subject, etc. He made annual statements of the progress of the work; a report on field observations in turpentine orchards; a report on structure of important pines; and a report on the investigations of the long-leaf pine. Mr. Roth was employed from October 1, 1890, to December 31, 1893, a period of three years and three months, a portion of the time at a salary of \$50 per month and a portion at \$1,500 per annum. Total salary, \$2,323.60; expenses (traveling, etc.), \$291.84; total, \$2,615.44.

#### PURCHASE AND DISTRIBUTION OF VALUABLE SEEDS.

The present seed-purchasing agent, Enos. S. Harnden, reports as follows:

I have no record whatever showing the duties or what was accomplished by my predecessor, Mr. R. J. Whittleton, appointed special agent for the purchase of seeds, outside of information furnished me by the chief of the Seed Division as to the quantity of seeds purchased and amount of money expended for the same. No records were turned over to me when I assumed the duties of purchasing agent as to the nature of Mr. Whittleton's work or duties, except a few acknowledgments in the way of letters from parties from whom seed had been purchased in 1889 and 1890.

It appears, however, from the books of the Department that seeds were purchased during the incumbency of Mr. Whittleton, and presum-

ably by him, from July 1, 1889, to March 31, 1893, aggregating \$199,853.94, or an average of \$49,963.48 per year. Salary and expenses from July 1, 1889, to March 31, 1893, \$7,964.75.

The duties of the seed-purchasing agent are as follows:

He is made directly responsible for the purchase of all seeds from the general seed appropriation to such an amount as may be indicated by the Secretary, and for any other purchase of seed that may be assigned to him by the Secretary's order.

He shall make all contracts for such varieties of seed as it may be desired to distribute within the limits of the amount assigned to him for that purpose, and he shall report each contract promptly to the chief clerk and to the chief of the Seed Division with a statement as to the probable time of delivery therefor. He shall keep a record of all contracts thus made, showing quantities and varieties, when and where purchased and prices paid, and shall on the first of the month report to the chief clerk the aggregate sum contracted for by him and the balance remaining of the sum appropriated for the purchase of seeds.

All contracts for seeds should be made as largely as possible on or before the — day of — of each calendar year, the same to be delivered, if possible, not later than the — day of — in each calendar year. He shall, furthermore, keep a record of the receipt of all seeds as advised to him by the chief of the Seed Division, and all correspondence with the parties from whom the seed is purchased shall be conducted through him or copied in his letter book.

He shall also prepare a report annually, showing the total amount expended by him during the fiscal year, with full details of the varieties and quantities of seed and from whom purchased and at what price, such report to be submitted yearly on or before October 1 in each calendar year.

Mr. Harnden has purchased, since July 1, 1893, seeds to the amount of \$54,670.28, consisting of field, flower, and vegetable, as against \$66,548.61, expended by his predecessor during the entire preceding year, with the following result: Nine and three-eighths per cent more corn,  $8\frac{1}{6}$  per cent more cotton, 3 per cent more beans,  $7\frac{1}{2}$  per cent more pease, 27 per cent more vegetables, and 17 per cent more flower seed.

Correspondence in the nature of inquiry as to the sources of supply of different seeds and other letters asking for information on the subject are referred to the purchasing agent for reply. Salary and expenses from July 1, 1893, to June 20, 1894, \$2,081.89.

#### IN THE OFFICE OF AGRICULTURAL EXPERIMENT STATIONS.

Prof. W. O. Atwater, on resigning the office of Director of the Office of Experiment Stations, July 15, 1891, was appointed special agent to act as consulting expert for the office, especially in the chemistry as related to agricultural investigations, and to prepare accounts of foreign investigations in agricultural science. In connection with this work, he visited at his own expense a large number of experiment stations and kindred institutions in Germany, Switzerland, Holland, Belgium, France, and England. By this means he brought the Office of Experiment Stations into cordial relations with many of the foremost workers in agricultural science abroad, and obtained a large amount of valuable material for the publications of the office. Up to the present time there have been published in the record some 350 pages of material furnished by Prof. Atwater in the form of treatises, abstracts, and translations. A considerable amount of valuable material is still on hand, which will be published within a few months.

August 1, 1893, Prof. Atwater's salary was reduced from \$1,800 to \$1,200 per annum at his request. At the same time he received a new commission, under which he is to prepare abstracts of European articles on agricultural investigations and a bulletin on the methods and results of food investigation, a subject on which he is probably the leading American authority. This work is rapidly approaching completion. Prof. Atwater was employed from July 15, 1891, to July 31, 1893, at a salary of \$1,800 per annum, and from August 1, 1893, to December 31, 1893, a period of one year eleven months and sixteen days at a salary of \$1,200 per annum; total salary, \$4,182.05; expenses (traveling, etc.), \$341.48; total, \$4,523.53.

Gustav Gehring acted as assistant to Prof. Atwater. Part of the time he spent abroad at his own expense. His work consisted in making translations, tabulating data, and preparing the copy of articles for publication. Mr. Gehring was employed from April 1, 1891, to June 30, 1892, a period of one year and three months, at a salary of \$100 per month; total salary, \$1,000; no salary was paid him from July 16, 1891, to September 15, 1891, and from March 1 to May 31, 1892; no other expenses.

#### EXPERIMENTS IN THE MANUFACTURE OF SUGAR.

John Bozarth was appointed to superintend the erection of some machinery to make experiments in the manufacture of sugar from sorghum at Cedar Falls, Iowa. These experiments were undertaken at the request of Hon. Wm. B. Allison, Senator in Congress from Iowa. Mr. Bozarth made no reports save in letters to the division, in which he gave account of the purchase and erection of the machinery. Mr. Bozarth was employed from July 1, 1889, to October 16, 1889, a period of three months and sixteen days, at a salary of \$1,200 per annum. Total salary, \$352.17; no other expenses.

H. A. Hughes was appointed to superintend experiments in the manufacture of sugar from sorghum at Rio Grande, N. J. These experiments continued over several seasons, and Mr. Hughes's reports are found published in Bulletins Nos. 17 (pp. 67-70) and 20 (pp. 29-42) of the Division of Chemistry. Reports of the work he had in charge are also found incorporated with those of Mr. Edson in Bulletin No. 18, pp. 20-28, and Mr. Horton in Bulletin No. 26, pp. 58-62. Mr. Hughes was employed from July 1, 1889, to October 31, 1889, a period of four months, at a salary of \$1,800 per annum; total salary, \$601.60; no other expenses.

W. W. Cook was appointed to make special investigation of the various localities in Kansas where sorghum sugar was manufactured or where preparations were making to manufacture it. His reports are published in Bulletin No. 2, pp. 33-41. Mr. Cook was employed from July 1, 1889, to September 10, 1890, a period of one year two months and ten days, at a salary of \$150 per month; total salary, \$1,200; expenses (traveling, etc.), \$176.92; total, \$1,376.92.

A. A. Denton was assistant in charge of the station at Sterling, Kans., established for the improvement of sorghum as a sugar-producing plant. His reports are found published in Bulletin No. 20, pp. 105-155, with that of Dr. C. A. Crampton, Bulletin No. 26, pp. 82-108, with that of Dr. C. A. Crampton, Bulletin No. 29, pp. 54-95, with that of Dr. K. P. McElroy, Bulletin No. 34, pp. 78-125, and Bulletin No. 37, pp. 76-95. Mr. Denton was employed from July 1, 1889, to June 30, 1893, a period of four years, a portion of the time at \$1,800 per annum,

\$1,200 per annum, and \$4 per day; total salary, \$2,948.24; no other expenses.

Mr. E. W. Deming was employed as agent of the Department at Attica, Kans. Mr. Deming never made any report except the part of his work which was incorporated in the report of Mr. Carr, Bulletin No. 26, pp. 72-77. He was employed from July 1, 1889, to November 15, 1889, a period of four months and fifteen days, at a salary of \$1,200 per annum; total salary, \$450.01; no other expenses.

#### INQUIRIES RELATING TO PUBLIC ROADS.

Roy Stone was appointed special agent and engineer, October 3, 1893, to supervise and carry out the investigation pursuant to the statute approved March 3, 1893, for the purpose of making investigations in regard to the best method of road-making, and to prepare publications on the subject, suitable for distribution.

He has compiled Bulletin No. 1 of the Office of Road Inquiry, and is gathering material for the various publications required by his written instructions. Salary and expenses from October 3, 1893, to June 20, 1894, \$2,410.11.

#### BUREAU OF ANIMAL INDUSTRY.

A special agent, Watson Pickrell, of Beatrice, Nebr., was appointed April 1, 1889, to serve in the Bureau of Animal Industry, and his services ended March 31, 1893. His appointment was authorized by the provision of the act of Congress approved May 29, 1884, establishing the Bureau of Animal industry. He was "to examine and report upon the best methods of treating, transporting, and caring for animals, and the means to be adopted for the suppression and extirpation of contagious pleuro-pneumonia, and to prevent the spread of other dangerous, contagious, infectious, and communicable diseases." Mr. Pickrell's position, by the wording of the statute, was not intended to be a permanent one, with a fixed salary. Hence, the law provides that a person filling that position, shall be paid \$10 per day and actual traveling expenses, *when employed*. This indicates that agents, under this act, were to be employed only temporarily, or intermittently, when emergencies seemed to demand services of that kind. However, the law was so construed, that a constant emergency existed. And, therefore, so long as he held his commission, Mr. Pickrell drew pay each and every day as though entitled to a salary of \$10 per diem and expenses, and his accounts show that between April 1, 1889, and March 31, 1893, under that construction of the law, Mr. Pickrell received \$15,994.

Mr. Pickrell is not a veterinarian, and, although his reports, made from time to time, are brief and possibly valuable, they have never been deemed of sufficient scientific merit to be given to the farmers of the United States in published form, either in part or in whole.

W. Judson Smith, of New Jersey, was appointed June 11, 1889, and performed similar laborious duties to those of Mr. Pickrell, under the same act, and was so constantly engaged in ascertaining the "best methods of treating, transporting, and caring for animals, and the means to be adopted for the suppression and extirpation of pleuro-pneumonia, and to prevent the spread of other dangerous, contagious, infectious, and communicable diseases," that he was employed evidently without any intermission, because the records show that he drew in salary and expenses something more than \$16,000 for services rendered. His reports are likewise on file, although they have never been

given to the public, nor have I been informed that they are worth printing.

His successor is Jacob Klotz, who has drawn for the periods April 1, 1893, to December 31, 1893, \$676.37.

Besides the foregoing, the names of all other agents who have been employed, or are employed as specials in the Bureau of Animal Industry, are herewith transmitted. The duties of each position are briefly outlined in each case by Dr. Salmon, chief of the Bureau.

F. E. Parsons, appointed November 13, 1890; services ended February 28, 1893. Detailed as a veterinary inspector of the Bureau of Animal Industry to inspect animals imported into the United States from Canada. Later given special instructions to visit the abattoirs where the work of meat inspection, under the regulations of this Department, was being conducted, examining the methods pursued and recommending any changes considered to be for the best interest of the work. Also sent to inaugurate the work of meat inspection at places where this inspection was to be commenced. Dr. Parsons was frequently detailed to represent the Department at meetings of farmers, stock raisers, etc., and to explain the work being done for the advancement of agriculture.

Reports were made from time to time on the work, and are on file in the Bureau of Animal Industry. Salary and expenses, November 13, 1890, to February 28, 1893, \$6,163.18.

W. H. Wray, appointed August 1, 1890; services continued at this date. Detailed as chief inspector for Great Britain, and directed to visit that country to investigate the reports of English veterinarians alleging the existence of contagious pleuro-pneumonia among American cattle. Instructed to inspect and report upon the condition of American cattle landed at the foreign animal wharf, Deptford, London, notifying this Department of the tag numbers of cattle said to be diseased in order that the origin of such disease could be traced.

Tabulated reports are made at the end of each month, which are on file in the Bureau of Animal Industry, and further reports are made as the exigencies of the work require. Salary and expenses, July 1, 1889, to December 31, 1893, \$18,351.18.

James F. Ryder, appointed August 1, 1890; services continued at this date. Detailed as veterinary inspector, with instructions to report to Dr. Wray, in Great Britain, and render him such assistance as might be directed. At first located at Glasgow, Scotland; now located at Liverpool, England, making reports regularly to Dr. Wray concerning the condition of American export cattle. Salary and expenses, July 1, 1889, to December 31, 1893, \$10,575.10.

Jacob Klotz, appointed April 1, 1893; services continued at this date. One of the two agents authorized by the act of Congress creating the Bureau of Animal Industry. Duties are outlined in the above act, but as the Bureau is not carrying on any special work in the eastern part of the United States no service has been rendered since May, 1893. Salary and expenses, April 1 to December 31, 1893, \$676.37.

Edward Shelden, appointed April 1, 1893; services continued at this date. One of the two agents authorized by the act of Congress creating the Bureau of Animal Industry. Detailed under the provisions of above act to proceed to Gordon, Nebr., and in coöperation with a veterinary inspector of this Department to inaugurate measures for the eradication of maladie du coït, existing in that vicinity among horses. Since the termination of that work, in the latter part of the year 1893, no special

services, except at Chicago for about sixty days, have been rendered. Salary and expenses, April 1 to December 31, 1893, \$2,690.29.

A. G. Asdikian, appointed May 29, 1890; services ended March 15, 1893. Appointed as an expert in matters relating to the breeding of horses, especially thoroughbred and Arabian horses.

Instructed to obtain information concerning thoroughbred horses in the United States, and ascertain if the admixture of Arab blood would lead to an improvement in these animals. Also to obtain information regarding Angora goats, and ascertain if their culture in the United States could be profitably pursued.

A manuscript copy of his report is filed in the Bureau of Animal Industry. Mr. Asdikian also assisted in the preparation of some of the reports of the Bureau which do not bear his name. Salary, \$3,355.49.

J. C. Baldridge, appointed August 1, 1892; services ended January 31, 1893. Detailed to purchase cattle affected with actinomycosis ("lumpy jaw") at the Union Stock Yards, Chicago, Ill., and supervise the shipment of them to Riverdale, Ill., where experiments with iodide of potassium for the cure of the disease were being conducted by the Bureau. He also arranged for the care and feeding of these cattle, and assisted in disposing of them after the experiments were concluded. Instructed to perform the duties just mentioned.

No report of his work is filed, but the results of the experiments are published in Bulletin No. 2. Salary and expenses, \$600.

C. C. Georgeson, appointed January 7, 1893; services ended April 7, 1893. Commissioned to investigate and report upon the dairy methods of Denmark. Instructed to proceed to Denmark and obtain required information. Report printed by the Bureau as Bulletin No. 5. Salary and expenses, \$1,332.35.

Henry H. Rand, appointed November 28, 1892; services ended February 28, 1893. Detailed to examine into the methods of conducting the work of the Bureau, with special reference to export cattle. Instructed to visit several ports of export. The records of this Bureau do not show the results of his inquiries. Salary and expenses, \$327.35.

In the list of special agents of the Bureau of Animal Industry is Mr. J. H. Sanders, who was appointed July 14, 1890, although not a veterinarian, ostensibly to investigate alleged diseases in American export cattle, and to endeavor to secure the removal of restrictions imposed by the authorities of Great Britain against the introduction of those cattle into her domain.

Mr. Sanders, as the papers herewith submitted show, was commissioned at \$13.50 per day, and instructed "to proceed at once to such places in Great Britain as he might think it necessary for him to visit," and "to charge all his expenses to the Government of the United States." The perils and sacrifices of Mr. Sanders in behalf of the American stock raisers, and to promote the sales of American cattle in Great Britain, are only faintly suggested by his rendered accounts, hereunto appended, and by the letters from Dr. Wray and others relative to his labors, exposures, and hardships, under his commission, while he represented the great agricultural and stock-raising interests of the United States in England. The aggregate expenses of Mr. Sanders, as shown by his itemized account, herewith submitted as a sample of the expense accounts of special agents in general, are \$4,134.

The reports of the successes of Mr. Sanders in advancing the interests of American-cattle feeders in Great Britain have never been published. Their character and value may probably be determined, approximately at least, by the appended letters of Dr. Wray, a veter-

inary surgeon, who was then, and is yet, the agent of the Department of Agriculture in London, to whom are intrusted the export interests of the meat producers of the United States in that city and the Kingdom of Great Britain.

Should incredulity require further evidence as to the danger which Mr. Sanders incurred as a promoter of the consumption of American beef in Europe, it may be found in a letter of his addressed to U. S. Consul-General King, at Paris, wherein he says: "I am liable to be kidnaped and thrown into a private madhouse." This suggests the pitfalls, perils, troubles, dangers, inconveniences, and calamities which are evolved by the enemies of American meat for the punishment of the special agents of the U. S. Department of Agriculture who endeavor to create an appetite for that edible in England.

Dr. Wray, the veterinary surgeon in charge of the London office of the Bureau of Animal Industry, in his letter dated at Upper Norwood, February 3, 1894, suggests that Mr. Sanders had been very efficient and active at large dinners given to influential members of the press in order probably that the succulence and deliciousness of American meats might be exploited in the newspapers of the United Kingdom.

The suggestion made by Gen. Adam E. King in his letter of February 17, 1891, dated at Paris, would indicate a suspicion upon the part of the U. S. consul-general that Agent Sanders had estrayed out of the British Empire into Paris and become rather annoying to the representatives of the State Department. And the two letters submitted, signed by Sanders as special agent of the U. S. Department of Agriculture, seem to verify the suggestions made by Consul-General King.

The farmers of the United States will be gratified to observe the faithful and efficient manner in which Mr. Sanders was, in Great Britain (while not at Stehr's Hotel in Paris), attending to the introduction of American meats, and possibly long since they may have realized great enhancement in beef prices, because of Mr. Sanders' valorous and valuable expedition into England for the purpose of creating a hunger for United States beef. As a friend of the American farmer, whose sacrifices in behalf of the breeders of live stock have made him famous in England, France, and Illionis, Mr. Sanders stands preeminently patriotic, luminous, and majestic among all the former servants of the Bureau of Animal Industry. No other has rendered such a zealous and beneficent service for so small a sum of dollars. The pilgrimage of J. H. Sanders in behalf of the plowmen of the United States, and his labors in Craven street and among the newspapers of wicked London, are embalmed forever among the virtues and vouchers of the U. S. Department of Agriculture.

DEPARTMENT OF AGRICULTURE,  
*Washington, July 14, 1890.*

Mr. J. H. Sanders, of the State of Illinois, is hereby appointed a special agent of the Bureau of Animal Industry, in the Department of Agriculture, at a salary of thirteen and a half dollars per diem. He will take the oath of office immediately and file the same, together with a statement of legal and city residence, in the Disbursing Office.

This appointment to take effect on entering upon his official duties.

J. M. RUSK,  
*Secretary.*

36 SPECIAL AGENTS, ETC., DEPARTMENT OF AGRICULTURE.

[Telegram.]

U. S. DEPARTMENT OF AGRICULTURE,  
DIVISION OF ACCOUNTS AND DISBURSING OFFICE,  
Washington, D. C., June 25 1890.

J. H. SANDERS,

*Breeders' Gazette, Chicago, Ill.*:

After adjournment of World's Fair Commission can you come to Washington?  
I wish to consult you upon important business connected with the Department.  
Your expenses will be defrayed. Answer.

J. M. RUSK,  
*Secretary.*

I hereby certify that the above is a true copy as shown by the records of this  
office.

F. L. EVANS,  
*Chief of Division and Disbursing Clerk.*

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U. S. DEPARTMENT OF AGRICULTURE,  
DIVISION OF ACCOUNTS AND DISBURSING OFFICE,  
Washington, D. C., July 14, 1890.

SIR: In the performance of your official duties as special agent of the Bureau of  
Animal Industry of this Department, you are hereby authorized to go to any places  
in Great Britain which you may think it necessary to visit, and you are hereby  
authorized to charge your necessary traveling expenses in your monthly accounts.

Very respectfully,

J. M. RUSK,  
*Secretary.*

J. H. SANDERS, Esq.,  
*Chicago, Ill.*

I hereby certify that the above is a correct copy as shown by the records of this  
office.

F. L. EVANS,  
*Chief of Division and Disbursing Clerk.*

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U. S. DEPARTMENT OF AGRICULTURE,  
DIVISION OF ACCOUNTS AND DISBURSING OFFICE,  
Washington, D. C., August 20, 1890.

SIR: In order to properly discharge the duties devolving upon you as special agent  
of the Bureau of Animal Industry of this Department in Great Britain, you are  
hereby authorized to incur such expenses as may be necessary.

Very respectfully,

J. M. RUSK,  
*Secretary.*

J. H. SANDERS, Esq.,  
*London, England.*

I hereby certify that the above is a true copy as shown by the records of this  
office.

F. L. EVANS,  
*Chief of Division and Disbursing Clerk.*

U. S. DEPARTMENT OF AGRICULTURE,  
DIVISION OF ACCOUNTS AND DISBURSING OFFICE,  
Washington, D. C., December 12, 1893.

SIR: I hand you herewith a detailed statement of the expenses of Mr. Jas. H.  
Sanders, special agent Bureau of Animal Industry, from July 3, 1890, to March 9,  
1891, said expenses being incurred mainly in trip to Europe during this period.

Respectfully,

F. L. EVANS,  
*Chief of Division of Accounts.*

Hon. J. STERLING MORTON,  
*Secretary.*

*James H. Sanders's expenses as an employé of the Bureau of Animal Industry.*

July	3, 1890.	Railroad fare, Chicago to Washington (via Pennsylvania, limited) .....	\$24. 50
July	3-4, 1890.	Supper, \$1; breakfast, \$1; dinner, \$1 (meals en route) .....	3. 00
July	9-10, 1890.	Railroad fare, Washington to Chicago.....	24. 50
		Supper, \$1; breakfast, \$1; dinner, \$1 (meals en route) .....	3. 00
		Hotel bill, Riggs House (as per subvoucher) .....	25. 00
			<hr/>
			80. 00
Aug.	19, 1890.	For salary, 5th to 19th (15 days), at \$13.50 per diem.....	202. 50
Aug.	5, 1890.	Expenses—railroad fare, Chicago to Washington (Pennsylvania, limited) .....	25. 00
Aug.	6, 1890.	Meals en route, Chicago to Washington .....	3. 00
Aug.	6, 1890.	Cab fare to hotel .....	. 50
Aug.	7, 1890.	Hotel bill (No. 1), 1 day .....	5. 00
		Cab fare.....	. 75
		Railroad to New York City.....	5. 75
		Extra fare, parlor car .....	1. 25
		Cab to hotel, New York.....	1. 50
Aug.	9, 1890.	Hotel bill, New York (2 days).....	10. 00
		Cab, hotel to steamer .....	1. 50
		Passage New York to Liverpool, ( <i>Serria</i> ) .....	120. 00
Aug.	18, 1890.	Customary gratuities to stewards on ship.....	4. 50
		Cab, self and baggage, dock to hotel, Liverpool (5 miles).....	2. 50
		Breakfast, lunch, Liverpool.....	1. 75
		Railroad, Liverpool to London.....	7. 25
		Cab, self and baggage to hotel, London.....	1. 25
Aug.	19, 1890.	Dinner in London, lodging and 3 meals.....	6. 00
			<hr/>
			400. 00
Aug.	31, 1890.	For salary, Aug. 20 to 31 (10 days), at \$13.50 per diem.....	135. 00
Aug.	20, 1890.	Expenses: Cab fare, consul-general's office and return (2 trips) .....	1. 50
		Cab fare, American legation and return.....	1. 00
Aug.	23, 1890.	Cab fare, consul-general and return .....	. 75
		Cab fare, American legation and return.....	. 75
Aug.	26, 1890.	Cab fare, American legation and return.....	. 75
Aug.	28, 1890.	Cab fare to American legation and return.....	. 75
Aug.	22, 1890.	Press notices (voucher A) .....	5. 25
Aug.	28, 1890.	Railroad fare, London to Liverpool .....	7. 25
		Cab fare to station.....	. 50
Aug.	29, 1890.	Room 1 day at Liverpool .....	2. 00
		Railroad fare, Liverpool to London .....	7. 25
		Cab fare from station .....	. 50
		Sleeping apartment, Aug. 20 to 31, inclusive (12 days), voucher B .....	19. 50
		Attendance and lights, Aug. 20 to 31, inclusive (12 days), voucher B .....	7. 50
		Furnished office lights, Aug. 20 to 31, inclusive (12 days), voucher B .....	18. 00
		36 meals (3 per day), Aug. 20 to 31, inclusive (12 days), voucher B .....	36. 00
			<hr/>
			244. 25
Sept.	30, 1890.	Salary for September 1 to 30, inclusive .....	351. 50
Sept.	1-30, 1890.	Expenses: Sleeping apartment, office room, attendance and lights, as per subvoucher No. 1.....	112. 50
Sept.	17, 1890.	Railroad fare, London to Aberdeen, Scotland, and return.....	33. 35
Sept.	19, 1890.	Cab fares, to and from stations (4 fares).....	1. 75
Sept.	21, 1890.	Railroad fare, London to Norwich and return.....	10. 25
Sept.	22, 1890.	Cab fares to and from stations (4 fares).....	1. 25
Sept.	25, 1890.	Railroad fare, London to Southampton and return.....	7. 75
Sept.	26, 1890.	Cab fares for trip (4 fares) .....	1. 50

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Sept.	9, 1890.	Cable to Secretary Rusk for inspection law.....	\$2.25
		Cab fares to American legation and consul-general's office, (9 trips at various dates).....	4.50
Sept.	30, 1890.	Meals, 3 per day, 30 days, 90 meals, at \$1 each.....	90.00
		Railroad fare, London to Liverpool.....	7.25
		Cab fare to station.....	.35
Oct.	1, 1890.	Notarial certificate, as per voucher No. 3 .....	2.50
			626.70
Oct.	31, 1890.	Salary for the month of October, 1890, 1 to 31, inclusive, (27 days, at \$13.50 per diem).....	364.50
Oct.	2, 1890.	Expenses: Cab, hotel to station at Liverpool and Glasgow.....	.35
		Railroad fare, London to Glasgow .....	8.25
		Cab to hotel .....	.25
Oct.	3, 1890.	Cab to station .....	.25
		Railroad fare, Glasgow to Edinburgh.....	1.62
		Cab to hotel, Edinburgh .....	.25
		Cab in Edinburgh.....	.50
Oct.	5, 1890.	Railroad fare, Edinburgh to Dundee and return to Edinburgh .....	4.00
		Cab fare to Dundee .....	.50
Oct.	6, 1890.	Railroad fare, Edinburgh to London .....	14.37
Oct.	7, 1890.	Railroad fare, London to Hereford and return .....	10.62
Oct.	9, 10, 1890.	Cab fare to and from dairy show, 4 trips, Hereford.....	4.00
		Admission, 2 days, dairy show, 4 trips, Hereford.....	1.00
Oct.	16, 1890.	Railroad fare, London to Darliston and return (cattle show) .....	9.00
Oct.	17, 1890.	Railroad fare, London to St. Petersburg and return (cattle show).....	5.60
Oct.	21, 1890.	Railroad fare, London to Ipswich and return (cattle show).....	4.87
Oct.	31, 1890.	Office and sleeping room, 8 Craven street, London, 31 days, at \$3.75 per day, as per subvoucher.....	116.25
		Cab fare to and from American legation, 6 times, at vari- ous dates, 11, 12, 17, 19, 22, and 24 .....	4.75
		Cab fare to and from consul-general's office, 3 times, at various dates, 20, 23, and 25 .....	3.75
Oct.	1 to 31, 1890.	Three meals per day, 31 days, 93 meals, at \$1 each .....	93.00
			647.68
Nov.	30, 1890.	Salary for November, exclusive of Sundays, 25 days, \$13.50 per diem.....	337.50
Nov.	18, 19, 1890.	Expenses railroad fare, London to Bristol and return.....	10.40
		Cab fares on trip .....	2.00
Nov.	21, 22, 1890.	Railroad, London to Norwich and return .....	10.25
		Cab fares on trip .....	1.75
Nov.	28, 1890.	Railroad, London to Birmingham .....	6.15
		Cab to station and hotel .....	.75
		Cab fares to American legation, 4, 5, 8, 24 .....	2.00
		Cab fares to consul-general's, 6, 11, 24 .....	2.75
		Stenographer, various dates, as per subvouchers .....	10.80
		Office and sleeping rooms, fires, lights, and attendants .....	142.60
Nov.	30, 1890.	Three meals per day, at \$1 (30 days), 90 meals.....	90.00
			616.95
Dec.	31, 1890.	Salary for December, 1890, exclusive of Sundays (27 days)	364.50
Dec.	2, 1890.	Expenses, railroad fare, Birmingham to London .....	6.15
		Cab from station .....	.50
Dec.	8, 9, 1890.	Cab fare to and from Smithfield show .....	3.00
		Stenographer at various dates (subvouchers Nos. 1 and 2), \$3.07 and \$1.45 .....	4.52
		Sleeping apartments, office rooms, fires, and lights, as per subvoucher No. 3 .....	118.75
		Three meals per day, 31 days (December), 93 meals.....	93.00
			590.42

## SPECIAL AGENTS, ETC., DEPARTMENT OF AGRICULTURE. 39

Mar.	10, 1891.	Salary for January, February, and March, 1891. January 1 to March 10, inclusive, 59 days, exclusive of Sundays, at \$13.50 per diem.	\$796.50
Feb.	28, 1891.	Expenses: Ocean passage to New York from Havre, France	100.00
Mar.	9, 1891.	Railroad and sleeping car from New York to Chicago*... Meals on route†	28.00 3.50
			<hr/>
			928.00
		Total expense.	4,134.00

[Stehs's Hotel, Rue de Provence, 55 près le Nouvel Opera et le Chemin de Fer de Dieppe.—Not dated.]

DEAR MR. KING:

I think I am in serious danger. Please come to me at once, room No. 2, this hotel, or send your solicitor (Mr. Kelly, I think, is his name). Please do not fail me; the case is an urgent one. As a measure of private revenge, and to subsequently get a reward, I am liable to be privately kidnaped and thrown into a private madhouse. The attempt was made last week. I was forcibly taken from my room through the front windows, but managed to frustrate the plan. Don't fail to come quick.

Yours, truly,

J. H. SANDERS,  
*Agent U. S. Department of Agriculture.*

[Stehr's Hotel, Rue de Provence, 55, près le Nouvel Opera et le Chemin de fer de Dieppe.]

PARIS, February 16, 1891.

DEAR COL. KING:

I am quite ill in bed, and my physician forbids me to stir. It is of the utmost importance that I should see you or your solicitor (Mr. Kelly, I believe) early to-day. Please come yourself or send him. Don't fail me, as it is of the utmost importance.

Yours, truly,

J. H. SANDERS,  
*Special Agent of the Department of Agriculture, U. S. A.*

PARIS, FRANCE, February 17, 1891.

DEAR SIR: Mr. J. H. Sanders, agent of the U. S. Department of Agriculture, is ill at an hotel here, probably from the effects of stimulants. I have already been much annoyed about the matter and can not suffer myself to be given further trouble or undertake responsibility in his case.

I respectfully request that you come yourself to Paris or take such other immediate steps as may be necessary in the premises. Two letters received by me from Mr. Sanders are herewith inclosed.

Very respectfully yours,

ADAM E. KING,  
*Consul-General.*

EDM. J. MOFFAT,  
*Agent U. S. Department of Agriculture, U. S. Consulate, London.*

CONSULATE-GENERAL OF THE UNITED STATES, LONDON,  
12 St. Heleus Place, February 20, 1891.

MY DEAR DR. WRAY:

I inclose a letter from U. S. Consul-General King, in Paris, relative to Sanders (with two letters from him). Please read and return them to me. It looks as though he were in a bad fix, drunk or insane. King says he won't do any more for him, and coolly asks me to go to Paris and take care of him, which I don't intend to do, as we have enough who have fallen by the wayside on this side of the channel. I will write King, and also Sanders, by this mail. I may belong to the Agricultural Department, but the Agricultural Department and all that therein is don't

\* Necessary to take express train on account of my serious illness.

† Dinner, March 9, \$1.25; supper, \$1.25; breakfast, Mar. 10, \$1.

belong to me, and I can't see why I should act as wet nurse for Sanders, especially as he is not in London. In short, I will inform King that I won't accede to his request. If you can think of anything we can do for Sanders, I am willing to join in, if it won't cost too much, but I am not going to visit him in Paris, at a cost of \$50 to \$75, for the fun of the thing.

Yours, very truly,

EDMUND J. MOFFAT.

CONSULATE-GENERAL OF THE UNITED STATES,  
*London, Monday.*

DEAR DOCTOR:

To my surprise, I have just received a letter from Sanders in which he says he has plenty of money for his own needs, and that one of his sons left New York a week ago to go to Havre, and that with him, on arrival, he will come to London. He reports himself in better health.

Yours,

MOFFAT.

UPPER NORWOOD, February 3, 1894.

SIR: In reply to your communication of the 11th ultimo, I have no recollection of Mr. J. H. Sanders ever showing me any instructions received by him from the U. S. Department of Agriculture; the instructions that I received from Mr. Sanders may possibly be of some use to you; they were written under date of July 22, 1890, as follows:

"Mr. J. H. Sanders goes abroad at the same time as yourself, as special agent of this Department, and while you will not be under his direction or control, you will consult with him as to the performance of your duties and give him all the information which may be possible, and which may assist him in the performance of his own duties."

Mr. Sanders did not cross the ocean with me, but presented himself at my lodgings about three weeks after my arrival in London. We then formulated a plan of operation; he to watch the newspapers and correct any article that appeared therein that was detrimental to the live-cattle import trade or against the health of the live stock in the United States, while I was to inspect all the cattle landed at Deptford from the United States and inform him about their condition and health, also to notify him of any information that I might learn which would be beneficial to him in writing his articles.

Mr. Sanders accompanied me once to the foreign cattle market at Deptford; subsequently, during his stay in London, I called upon him several times at his apartments in Craven street for the purpose of giving him some information in reference to the live-cattle trade that I thought would be useful to him.

As Mr. Sanders's duties while here kept him in London, while I was compelled to remain at Deptford, where the American cattle are unloaded and slaughtered, I did not see very much of him.

In reference to your query about his conduct, I never saw or heard of his associating with any influential people while here, except what he told me; the few times we did meet he invariably told me about some large dinner that he had given to some influential members of the press; then would complain of being short of funds and request a loan of me.

I have heard from different officials of the U. S. Government located in London that he was continually borrowing money of them to such an extent that they disliked to see him enter their offices. A few months after Mr. Sanders had left London I received a letter from a solicitor on Queen Victoria street who wished to know his address. This letter has been mislaid.

As I saw so little of Mr. Sanders, I do not know anything about his morals, except as they apply to his borrowing money. I am very sorry to be compelled to inform you that during Mr. Sanders's sojourn in this country he was to me a source of anxiety, and at times of annoyance, instead of being beneficial. I was continually in dread that he would do something detrimental to the Department he represented and to our work in this country; he seemed to lack diplomacy.

Mr. Sanders, not being a medical man or a veterinarian, did not make any investigations of contagious pleuro-pneumonia, but he wrote three articles that I know of about the unfairness of the existing restrictions against American cattle, in each article upholding the health of the American cattle and denouncing, in a general way, the assertion of the English veterinarians that the cases alleged to be contagious pleuro-pneumonia in the lungs of American cattle was not that disease, but a pneumonia of a noncontagious character. Following is the names of the papers and the dates on which the articles referred to appeared: The Live-Stock Journal of

September 1, 1890, the Liverpool Journal of Commerce of October 3, 1890, and Bell's Weekly Messenger and Farmers' Journal of November 17, 1890.

I inclose you copies of letters written by Mr. Sanders to Gen. Adam E. King, who, at that time, was consul-general to France, also a copy of Gen. King's letter to Mr. Moffat, and Mr. Moffat's original letters to me; I would respectfully request that you return Mr. Moffat's letters to me when you have finished with them.

Although Mr. Moffat mentions in one of his letters that Mr. Sanders was "either drunk or insane," I must say that I never saw him intoxicated during his sojourn in this country.

I dislike to say or write anything derogatory of anyone, but deemed it my duty to answer your questions to the best of my ability, with a request that what I have written will be kept *inter nos* as consistently as possible.

Very respectfully, your obedient servant,

W. H. WRAY.

Hon. J. STERLING MORTON,  
*Secretary of Agriculture, Washington, D. C.*

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The following summary of reports of J. H. Sanders, on file in the Bureau of Animal Industry, is furnished me by Dr. Salmon, Chief thereof :

Under date of London, September 12, 1890, Mr. Sanders makes an informal report, with which he incloses a large number of newspaper clippings to show the prevailing sentiment in regard to the cattle and meat trade of the United States. He shows that there was much hostility to this trade on the part of influential newspapers, and he briefly states his action to supply the editors with correct information on the subject. He also refers to the efforts being made to secure the passage of the Plimsoll bill through Parliament, which provided for the total prohibition of the live-cattle trade from this country. As a means of preventing this damaging legislation he urged the establishment of regulations by the U. S. Government for supervising the loading of cattle and for guarding against overcrowding on ships. He also reported the landing of American cattle affected with Texas fever, and urged the adoption of regulations to prevent the infection of these animals. He stated that if this were not done the prohibition on the landing of American cattle would not be removed when pleuro-pneumonia was eradicated, but would be maintained on the ground that there was danger from Texas fever.

Under date of Liverpool, October 1, 1890, he reported that his principal work during the preceding two weeks had been to aid the steamship associations in preparing a reply to Mr. Plimsoll's arraignment of the cattle-carrying business from America before the House of Commons. The reply, he said, would be a complete vindication of the charges of gross cruelty and inhumanity which were made by Plimsoll. He also refers to interviews with various newspaper editors for the purpose of giving them correct information in regard to our cattle trade. He again refers to outbreaks of Texas fever among cattle shipped from the United States, and urges measures for its prevention.

Under date of Edinburgh, October 7, 1890, he writes that he has just investigated the alleged outbreak of pleuro-pneumonia among Canadian cattle landed at the port of Dundee. He points out the errors of the official inspectors, and incloses newspaper articles in support of his conclusions.

Under date of London, November 4, 1890, he reports that he has written special communications for some 40 newspapers in order to give correct information in regard to the cattle trade. He gives information in regard to the influences at work against this trade, with suggestions as to how to counteract them.

Under date of London, December 3, 1890, Mr. Sanders reports further interviews with influential stock-raisers and newspaper men, with a view of disseminating correct information and diminishing the opposition to the cattle trade and lessening the pressure for the passage of the Plimsoll bill. He also refers to the continued agitation over the danger from Texas fever, and also to sensational articles about an alleged outbreak of pleuro-pneumonia in New Jersey, and the desirability of correcting the statements made in regard to these matters.

Under date of Paris, January 9, 1891, he states that he had been ill with ulcerated sore throat, and was obliged to leave London on account of the foggy atmosphere, and had consequently gone to Paris. He also states that he has made arrangements for bringing the subject of the removal of the prohibitions before the British Government, with English support, as soon as pleuro-pneumonia is eradicated from the United States.

Under date of Chicago, Ill., March 12, 1891, he states that instead of recovering his health after going to Paris, he had suffered from nervous prostration, which cul-

minated in inflammation of the brain of the most serious character; that he had been very dangerously ill for several weeks, and unconscious, and that one of his sons had gone to Paris and accompanied him home as soon as he was able to travel.

And all that cost less than \$5,000. The results are beyond computation by the farmers of the United States.

#### THE WEATHER BUREAU.

*Special agents.*—The following special agents were appointed by Secretary Rusk as a part of the adaptation of the work of the Weather Bureau to the needs of agriculture. In a few cases their work was purely climatological. It was a part of the policy of Secretary Rusk to develop more completely the climatology of the United States than had been done theretofore. The following are the individual special agents, with the declared objects and alleged reasons of their appointments, the character of their duties and instructions, and the disposition of their reports:

L. H. Bailey was appointed as "an expert," and was instructed to investigate the relation of stages of development of crops to the advance of season. He was to compile the literature on this subject for the United States as it already existed. His instructions were by letter, copy of which is on file in the office of the Chief of the Weather Bureau. His report is not yet complete. The delay is due to illness on the part of Prof. Bailey and other causes. At his request delay was granted in filing this report after the expiration of the appointment. Employed from December 15, 1891, to March 15, 1892. Total amount of salary, \$303.22.

H. B. Battle was appointed as an expert to investigate the climatology of the tobacco plant. The work was carried on more directly under the Assistant Secretary of Agriculture. The investigation was to find the relation of climate to the tobacco plant, and the instructions (so far as they were written) were made through the Assistant Secretary. The report is not on file in the office of the Chief of the Weather Bureau. Employed from January 12, 1892, to June 30, 1892. Total salary and expenses, \$591.02.

Frank N. Cole was appointed to investigate the diurnal fluctuations of air pressure in the United States as a contribution to the climatology of the States. His duty was to reduce the data already existent and put them in complete and tabulated form. The instructions were issued by letter on file in the office of the Chief of the Weather Bureau, and his report was printed as Weather Bureau Bulletin No. 5. Employed from December 15, 1891, to June 30, 1892. Total amount of salary, \$582.41.

Eugene W. Hilgard was appointed to investigate the relations of soils to climate, more especially the alkaline soils of the West. He was to study the correlation of the climate and soils, and his instructions were by letter on file in the office of the Chief of the Weather Bureau. His report was published as Weather Bureau Bulletin No. 3, and has been translated into several languages. Employed from March 1, 1892, to May 31, 1892. Total amount of salary, \$300.

Gustavus Hinrichs was instructed "to investigate the details of rainfall as affecting agriculture." His duties were to investigate and report on the distribution of rains, according to the depth of fall, and their influence on crops. His instructions were by letter on file in the office of the Chief of the Weather Bureau. His report was printed as Special

Bulletin of the Weather Bureau, 1893. Employed from December 15, 1891, to June 30, 1892. Total amount of salary, \$1,629.02.

J. E. Keeler was appointed to investigate the radiation of heat from the atmosphere, with special reference to unseasonable, low temperatures. His duties were to give a general account of the radiation of heat from the atmosphere, as a result of the observations made with specially delicate instruments in his charge. He has made a special request for delay, in order to complete the report after the expiration of his appointment. This delay was granted and the report has not yet been received. Employed from January 28, 1892, to June 30, 1892. Total amount of salary, \$512.90.

F. H. King was appointed to investigate the moisture of the soil, more especially the relation of the level of ground water to changes in the weather. His duties were to give a general account of the relation of the level of ground water to climate. His instructions were by letters on file in the office of the Chief of the Weather Bureau. His report was printed as bulletin No. 5 of the Weather Bureau. Employed from February 1, 1892, to June 30, 1892. Total amount of salary, \$750.

Frank H. Loud was appointed to investigate the winds of the Great Plains, more especially those injurious to agriculture. He was to study and give a general account of these winds, and his instructions were by letter on file in the office of the Chief of the Weather Bureau. His report is filed in the office of the chief of the Weather Bureau. Employed from January 11, 1892, to June 30, 1892. Total amount of salary, \$851.61.

P. H. Mell was appointed to investigate the relations of climate to the cotton plant. He was to report to the Bureau a general account of these relations. His instructions were by letter on file in the office of the Chief of the Weather Bureau. His report was printed as Weather Bureau Bulletin No. 8. Employed from February 1, 1892, to September 30, 1892, and from December 27, 1892, to June 30, 1893. Total amount of salary and expenses, \$1,387.93.

Robert L. Packard was appointed to investigate the soils, in connection with the work of Mr. Milton Whitney, mentioned below. By arrangement with the Department of Agriculture this work was performed in the Chemical Division. Mr. Packard received his instructions and made his report to the Assistant Secretary. The report is not on file in the Weather Bureau, but is supposed to be in the Chemical Division, or with the Assistant Secretary. Employed from October 19, 1892, to June 30, 1893. Total amount of salary, \$841.29.

Henry A. Rowland was appointed to investigate the use of the rainband spectroscope in weather forecasts, and to see whether it could not be made in practical form for general use. He was to investigate the usefulness of the rainband spectroscope and the possibility of its simplification for ordinary use. His instructions were by letter on file in the office of the Chief of the Weather Bureau. By special request this report was withheld for completion after the expiration of the appointment. It is now undergoing its final revision and will be received, probably, in a short time. Employed from January 1, 1892, to June 30, 1892. Total amount of salary, \$300.

John Swainson was appointed as an expert to make a compilation of the wrecks of the Great Lakes and of the currents of the lakes. Instructions to him were given through the inspector, and marine agent, respectively, at Detroit and Cleveland. Two reports have been filed and published. The first was a wreck chart for the Great Lakes, and

the second was a current chart of the Great Lakes. Employed from December 12, 1891, to March 12, 1892, and from April 4, 1892, to June 30, 1892. Total amount of salary, \$448.20.

E. T. Turner was appointed to investigate the climate of the State of New York, with especial reference to its relation to agriculture. He was to study all the observations and give a general account of the climate of the State of New York. His report is filed and in course of publication. Employed from December 15, 1891, to June 30, 1892. Total amount of salary, \$654.83.

Frank Waldo was appointed to investigate the distribution of winds in the United States with reference to their use locally as sources of power. His duty was to give a general account of the distribution of winds with reference to their use in this way. His instructions were by letter on file in the office of the Chief of the Weather Bureau. His report is on file. Employed from December 15, 1891, to June 30, 1892. Total amount of salary, \$1,309.65.

Robert deC. Ward was appointed to investigate the subject of thunderstorms during one season. He was to give a general account of the storms for that summer. His instructions were by letter on file in the office of the Chief of the Weather Bureau. His report has been filed and used in the preparation of Bulletin No. 9 of the Weather Bureau. Employed from April 23, 1892, to June 30, 1892. Total amount of salary, \$226.67.

Milton Whitney was appointed to investigate the subject of soils and the moisture contained in them. He was to give a general account of soils and their relation to moisture and rainfall. Two reports have been presented by him. One was printed as Weather Bureau Bulletin No. 4, and the second has been transmitted to the honorable Secretary of Agriculture. Employed from December 15, 1891, to June 30, 1893. Total amount of salary, \$3,682.24.

W. P. Wilson was appointed to investigate the relations of bright sunshine to the behavior and development of plants. He was to give a general account of the relations of bright sunshine to plants. His instructions were by letter on file in the office of the Chief of the Weather Bureau. His report has been filed and permission has been given him by the Secretary of Agriculture to publish it at his own expense. Employed from September 1, 1892, to June 30, 1893. Total amount of salary, \$500.

*Inspectors.*—The inspectors of the Weather Bureau are now ordered to inspect stations as to their business, as to their property, and as to all technical meteorological details. Their instructions heretofore have been issued irregularly, and have been printed, written, and oral. Reports have in all cases been filed, but they are of no real value.

The inspectors were: Theodore F. Townsend, from July 15, 1891, to December 31, 1892; total salary and expenses, \$3,747.52. Henry C. Bate,\* from July 16, 1891, to December 31, 1893; salary and expenses, \$5,571.21. Norman B. Conger,\* from November 2, 1891, to December 31, 1893; salary and expenses, \$4,971.72. Mortimer Whitehead (National Grange orator), from February 16, 1892, to May 31, 1893; salary and expenses, \$2,477.35. John W. Smith, from January 1, 1893, to December 31, 1893; salary and expenses, \$2,082.51.

The alleged objects and reasons of the appointments of these inspectors were as hereinbefore stated. Their duties and instructions were presumed to be as defined, and their generally meager

\* These two inspectors are still in the service; their salaries and expenses computed only to December 31, 1893.

reports have been filed. Somewhat of an exception to the general plan was made in the case of the fourth named above, Mr. Mortimer Whitehead. He was instructed to inspect especially the relations of the Weather Bureau to the agricultural community and its votes, and more especially the character of the distribution of political forecasts to bucolic communities. To him was also intrusted the labor of adroitly addressing societies of farmers in various parts of the country when political perturbations invited such addresses. To him, as national orator of the grange, was also intrusted the inspection of the relations of the Weather Bureau to the voting public, and in this connection he had charge of the newspaper section of the Bureau, in which are received, considered, and filed all comments by the press which are of the nature of commendation or criticism of its work. The versatility of the genius of Mr. Whitehead quite equaled the caprices of the weather and politics, which he commingled in his addresses to granges with as much skill as can be evinced by the best purveyors of mixed drinks and dietaries. His resignation has left a huge hollow in the furrow which he so felicitously followed as a favor to farmers and a devoted disciple of meteorological lore. He could forecast a change in politics or weather with miraculous celerity and certainty.







